FX41

AMD AthlonXP/Duron 462-pin Processor with 200/266 MHz FSB Based DDR MAINBOARD

User's Manual

Shuttle® FX41

AMD AthlonXP/Duron 462-pin Processor with 200/266 MHz FSB Based DDR Mainboard Manual Version 1.0

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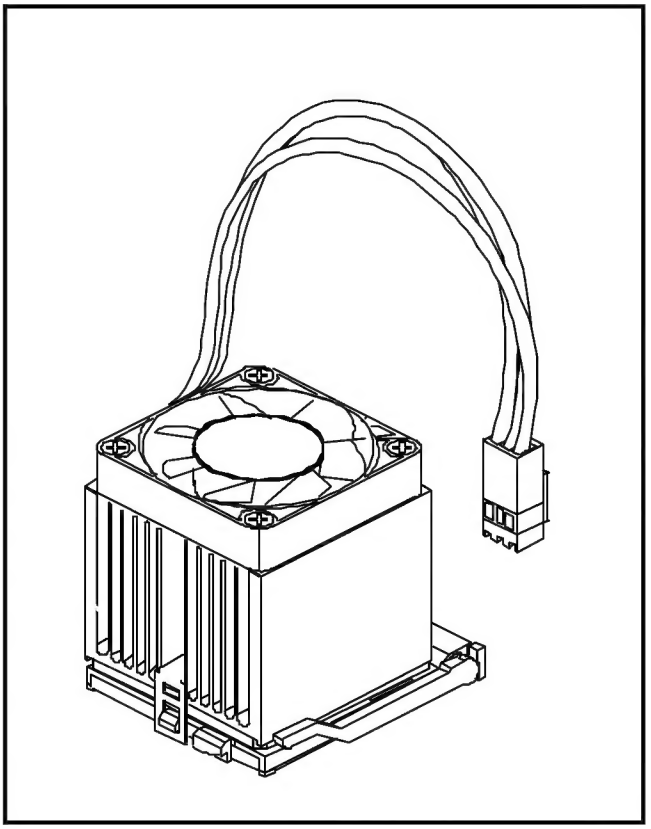
WARNING

Thermal issue is highly essential for processors with a speed of 600MHz and above. Hence, we recommend you to use the CPU fan qualified by AMD or motherboard manufacturer. Meanwhile, please make sure CPU and fan are securely fastened well. Otherwise, improper fan installation not only gets system unstable but also could damage both CPU and motherboard because insufficient thermal dissipation.

If you would like to know more about thermal topic please see **AMD website** for detailed thermal requirement through the address:

http://www.amd.com



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1 INTRODUCTION

1.1 To Different Users

First-Time DIY System Builder

Welcome to the DIY world! Building your own computer system is not as difficult as you may think. To make your first computer DIY experience successful, right from the start, we have designed the **3.1 Hardware Installation** section in a step-by-step fashion for all the first-time DIY system builders. Prior to installation, we also suggest you to read the whole manual carefully to gain a complete understanding of your new Shuttle FX41mainboard.

Experienced DIY User

Congratulate on your purchase of the Shuttle FX41mainboard. You will find that installing your new Shuttle FX41 mainboard is just easy. Bundled with an array of onboard functions, the highly-integrated FX41 mainboard provides you with a total solution to build the most stable and reliable system. Refer to sections **3.2 Jumper Settings** and **Chapter 4 Drivers/Software Utilities** to find out how to get the best out of your new mainboard. **Chapter 5 BIOS Setup** also contains the relevant information on how to tune up your system to achieve higher performance.

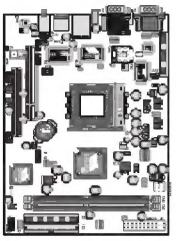
System Integrator

You have wisely chosen this mainboard to construct your system. This mainboard incorporates all the state-of-the-art technology of the KM266 chipset from VIA. It integrates the most advanced functions you can find to date in a compact ATX board.

1.2 Item Checklist:

Check all items with your FX41 mainboard to make sure nothing is missing. The complete package should include:

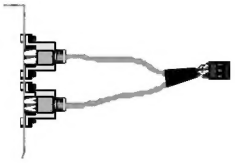
- One piece of the FX41 mainboard



- One piece of ATA **100/66/33** Ribbon Cable

- One piece of Floppy Ribbon Cable

- One piece of twin ports USB Cable **(optional)**



- One piece of S-Video to AV-Output Cable **(optional)**

- User's Manual

- One piece of Bundled CD-ROM with containing:
  - FX41 user's manual in PDF format
  - VIA Chipset driver
  - VGA Device driver
  - Audio driver
  - USB 2.0 driver
  - LAN driver
  - Award Flashing Utility

2 FEATURES

This mainboard is carefully designed for the demanding PC user who wants high performance and maximum intelligent features in a compact package.

2.1 Specifications

✸ CPU Support

AMD Athlon XP Processor with 266 MHz FSB.
AMD Duron Processor with 200 MHz FSB.

✸ Chipset

Features VIA KM266/VT8375 N.B. and VIA VT8235 S.B..

Onboard Lan

Realtek 8100B, support 10Mb/s and 100Mb/s operation.

Onboard TV-Out

Chrontel 7005C, support S-Video and AV Output Singnals.

Onboard 1394

VIA VT6306, support 400Mb/s, 200Mb/s, 100Mb/s data transfer rate.

✸ FSB Setting

FX41provides jumper JP2 to configure front side bus at 100/133MHz.

✸ On Board Graphical Controller

VIA KM266/VT8375 integrates a full featured S3 ProSavage8 128-bit 2D/3D AGP controller.

✸ On Board 6 Channel AC'97 Audio

Compliant with AC'97 2.2 specifications.
6 channel slot selectable DAC output for multi-channel applications.

✸ Versatile Memory Support

Two **184-pin DIMM** slots to support up to 2GB of PC1600 or PC2100 compliant **DDR** SDRAM module.

✸ Expansion Slots

Provide one 32-bit Bus Master slot, and one AGP slot.

✸ 6 USB Interface Onboard

- 2 x USB connectors on back-panel and two sets of dual USB port headers on mid-board.

✸ I/O Interface

Provides a variety of I/O interfaces:

- 1 x Floppy interface for 3.5-inch FDD with 720KB, 1.44MB, or 2.88MB format or for 5.25-inch FDD with 360K or 1.2MB format.
- 2 x DB9 serial connectors 16C550 UART compatible.
- 1 x Infrared communication port.
  (Serial port COM2 can also be redirected to an external IrDA Adapter for wireless connection.)
- 1 x DB15 VGA connector.
- 1 x AV & S-Video connector.
- 2 x USB connectors.
- 2 x 1394 connectors.
- 1 x RJ45 LAN connector.
- 1 x PS/2 Mouse connector.
- 1 x PS/2 Keyboard connector.
- 1 x Line-Out (Front-Out) port.
- 1 x Line-In port, shared with rear speaker output when multi-channel audio is enabled.
- 1 x Bass/Center-Out port.

✸ PCI Bus Master IDE Controller Onboard

Two UltraDMA **133** Bus Master Dual-Channel IDE ports provide support to a maximum of four IDE devices (one Master and one Slave per channel). The IDE Bus implements data transfer speeds of up to **133** MB/sec and also supports Enhanced PIO Modes.

80-pin Cable Backward Compatible Legacy ATAPI Devices, ATAPI IDE CD-ROM, CD-R, CD-RW, and LS-120 Supports.

✸ ATX Power Supply Connector

ATX power supply unit can connected to the onboard 20-pin standard ATX power connector, supporting Suspend and Soft-On/Off by dual-function power button.

The ATX power include other 4-pin + 12V ATX power connector.

✸ Advanced Configuration and Power Interface

Features four power saving modes: S1 (Snoop), S3 (Suspend to RAM), S4 (Suspend to DISK), and S5 (Soft-Off). ACPI provides more efficient Energy Saving Features controlled by your operating system that supports OS Direct Power Management (OSPM) functionality.

✸ System BIOS

Provides licensed Award BIOS V6.0 PG on 2Mb Flash core and supports Green PC, Desktop Management Interface (DMI).

✸ Form Factor

System board conforms to the ATX specification.

Board dimension: 254mm x 185mm.

✸ Advanced Features

- **Low EMI -** Built in spread spectrum and automatic clock shut-off of unused PCI/SDRAMS slots to reduce EMI.
- **Dual Function Power Button -** The system can be in one of two states, one is Suspend mode and the other is Soft-Off mode. Pushing the power button for less than 4 seconds places the system into Suspend mode. When the power button is pressed for longer than 4 seconds, the system enters Soft-Off mode.
- **Modem Ring Power-On -** The system can be powered on automatically by the activation of modem ringing.
- **CPU Host/SDRAM/PCI Clock Setting** -This item allows users to adjust CPU Host Clock, SDRAM, and PCI Clock in BIOS.

✸ Intelligent Features

- **Voltage Monitoring -** Monitors various voltages of key elements, such as the CPU, and other critical system voltage levels to ensure stable current passing through mainboard components.
- **Fan Status Monitoring -** To prevent CPU from overheating, the CPU fan is monitored for RPM and failure. (CPU Cooling FAN with RPM sensor is required.)
- **Temperature Monitoring -** This item allows users to make sure whether the CPU or system runs in a suitable temperature.

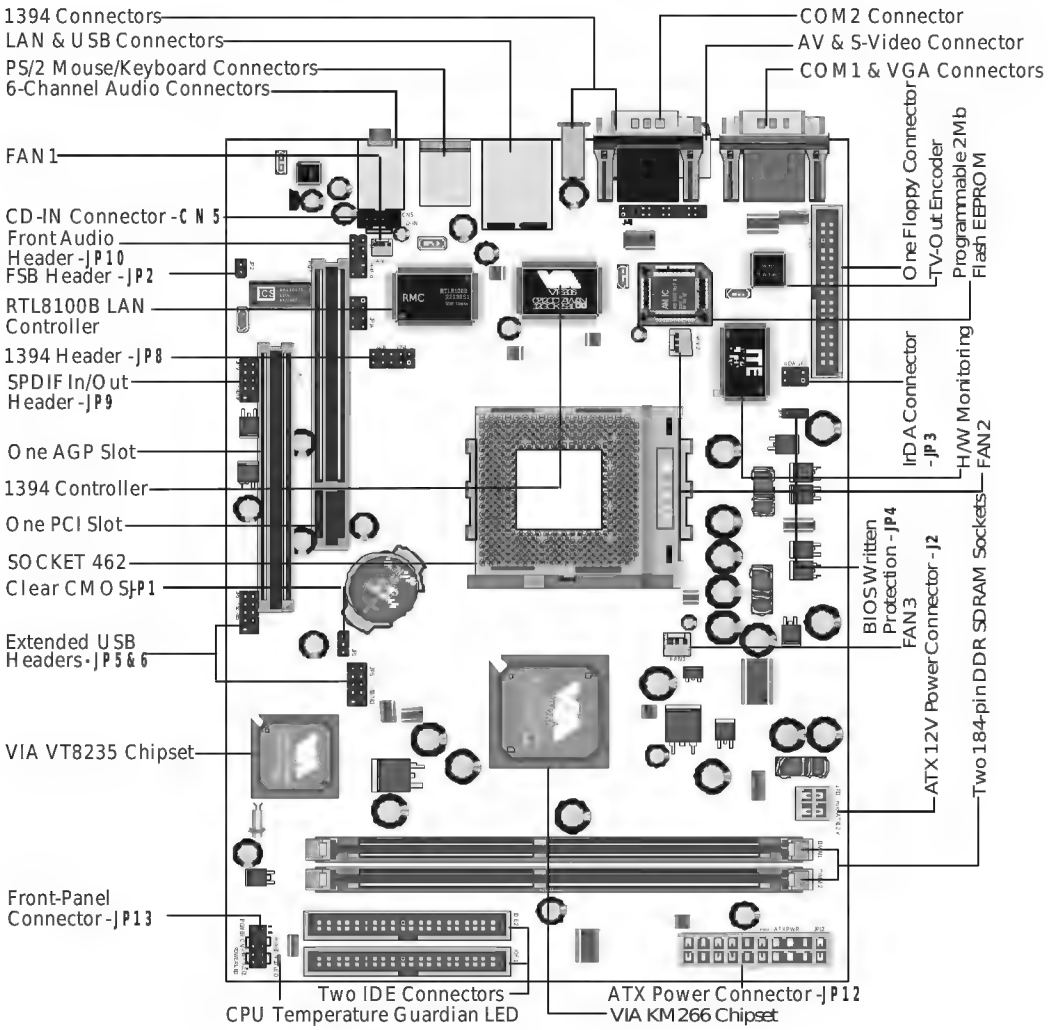
3 HARDWARE INSTALLATION

Before removing or installing any of these devices including CPU, DIMMs, Add-On Cards, Cables, please make sure to unplug the onboard power connector.

This section outlines how to install and configure your mainboard. Refer to the following mainboard layout to help you to identify various jumpers, connectors, slots, and ports. Then follow these steps designed to guide you through a quick and correct installation of your system.

3.1 Step-by-Step Installation

Accessories Of the FX41 Mainboard



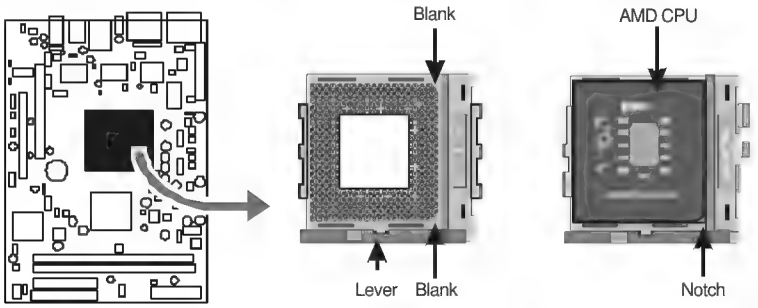
Step 1

Install the CPU:

1. Locate the CPU ZIF (Zero Insertion Force) socket on the upper-right sector of your mainboard (between the back-panel connectors and the DIMM memory slots).

2. Pull the CPU ZIF socket lever slightly sideways away from the socket to unlock the lever, and then bring it to an upwardly vertical position.

3. Place your AMD AthlonXP/Duron processor in the socket A. Note that the CPU's edges have been purposely designed non-symmetrically to prevent from inserting the processor in the wrong direction. The following diagram demonstrates the correct placement of the CPU in the ZIF socket. You can see that the two blunt-edged corners should face towards the socket-lever.



4. Slightly push the AMD AthlonXP/Duron processor into the socket without applying excessive force while making sure there is no gap between CPU and socket. Then lower the socket-lever all the way down to its horizontal position and lock it to secure the CPU in place.

5. The AMD AthlonXP/Duron processor requires a set of heatsink/fan to ensure proper cooling of the processor. If heatsink/fan have not been already mounted on your CPU, you must purchase the heatsink/fan separately and have it installed. Plug the cable throught the heatsink/fan in the CPU fan power connector located nearby. Note that there are several types of CPU fan connectors. Normally, if your mainboard supports the hard ware monitoring function, a 3-pin fan power connector should allow your system to detect the CPU fan's speed . The CPU fan can also run with a 2-pin fan power connector, however, detection of CPU fan's speed is not supported. Another type of CPU fan may feature a large 4-pin fan power connector, which does not support CPU fan's speed detection and must be directly connected to the system's power supply unit. Please refer to the following diagram.

Step 2.

Set Jumpers

This mainboard is jumperless! The default jumper settings have been set for the common usage standard of this mainboard. Therefore, you do not need to reset the jumpers unless you require special adjustments as any of the following cases:

Clear CMOS
FSB setting
BIOS written protection

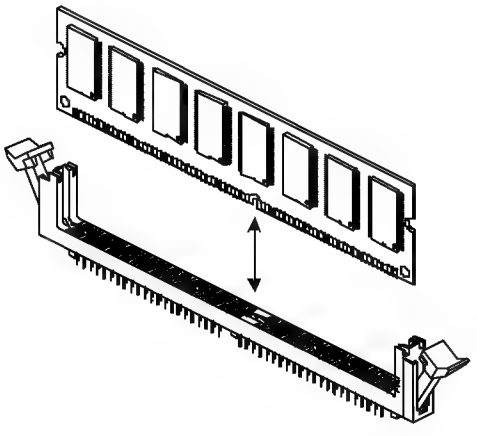
For first-time DIY system builders, we recommend that you not change the default jumper settings if you are not totally familiar with the mainboard configuration procedures. The factory-set default settings are tuned for optimum system performance. For the advanced users who wish to customize their system, section **3.2 Jumper Settings** will provide detailed information on how to configure your FX41 mainboard manually.

Step 3

Install DDR SDRAM System Memory

To install memory, insert DDR SDRAM memory module(s) in DIMM slot(s). Note that DDR SDRAM modules are directional and will not go in the DIMM slots unless properly oriented. After the module is fully inserted into the DIMM slot, lift the clips of both sides of the DIMM slot to lock the module in place.

DDR SDRAM



Step 4

Install Internal Peripherals in System Case

Before you install and connect the mainboard into your system case, we recommend that you first assemble all the internal peripheral devices into the computer housing, including but not limited to the hard disk drive (IDE/ HDD), floppy disk drive (FDD), CD-ROM drive, and ATX power supply unit. This will greatly facilitate in making the connections to the mainboard described below.

To install IDE & FDD drives, follow this procedure:

1. Set the required jumpers on each device according to the instructions provided by the manufacturer. (IDE devices, HDD, and CD-ROM have to set jumpers to Master or Slave mode depending on whether you install more than one device of each kind.)

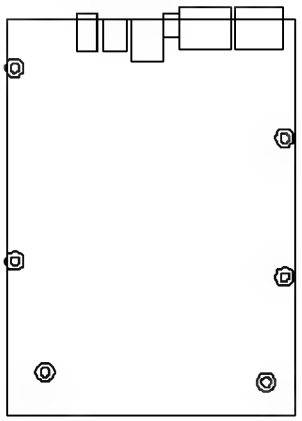
2. Connect IDE cable and FDD cable on the back-panel of the internal peripheral devices to the corresponding headers on board. Note that the cable should be oriented with its colored stripe (usually red or magenta) connected to pin#1 both on the mainboard IDE or FDD connector and on the device as well.

3. Connect an available power cable from your system power supply unit to the back-panel of each peripheral device. Note that the power cable is directional and cannot fit in if not properly positioned.

Step 5

Mount the Mainboard on the Computer Chassis

1. You may find that there are a lot of different mounting hole positions both on your computer chassis and on the mainboard. To choose correct mounting holes, the key point is to keep the back-panel of the mainboard in a close fit with your system case, as shown below.



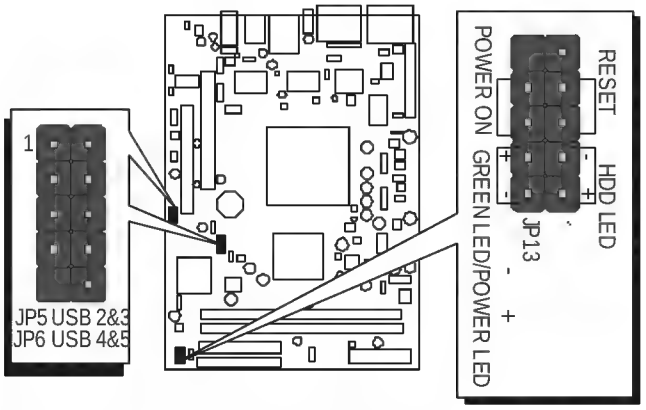
2. After deciding on the proper mounting holes, position the studs between the frame of the chassis and the mainboard. The studs are used to fix the mainboard and to keep a certain distance between the system's chassis and the mainboard, in order to avoid any electrical shorts between the board and the metal frame of the chassis. (If your computer case is already equipped with mounting studs, you will need to tighten screws to attach the mainboard.)

Note: In most computer housings, you will be able to find 4 or more attachment points to install mounting studs and then fix the mainboard. If there are not enough matching holes, then make sure to install at least 4 mounting studs to ensure proper attachment of the mainboard.

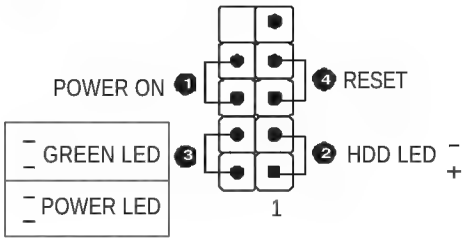
Step 6

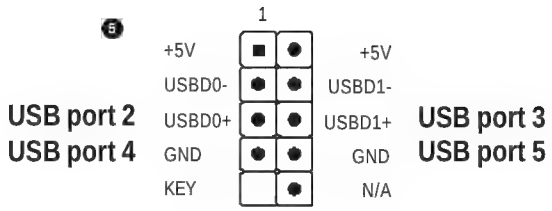
Connect Front Panel Switches/LEDs/USBs

You can find there are several different cables already existing in the system case and originating from the computer's front-panel devices (HDD LED, Power LED, Reset Switch, or USB devices etc.). These cables serve to connect the front-panel switches, LEDs, and USB connectors to the mainboard's front-panel connector groups (JP13 and JP5&6), as shown below.



1. ATX Soft Power On/Off (POWER ON)
2. HDD-LED (HDD LED)
3. Green-LED and Power-LED (GREEN LED/POWER LED)
4. Hardware Reset Switch Button (RESET)
5. Extended USB Headers (USB 2&3/USB 4&5)

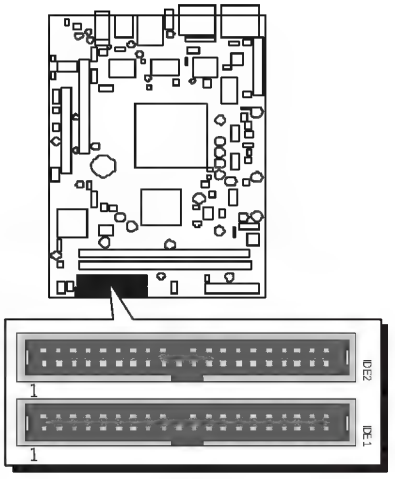




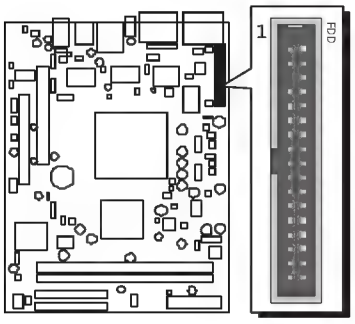
Step 7

Connect IDE and Floppy Disk Drives

1. IDE cable connectors



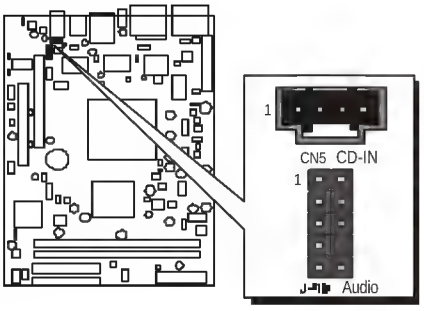
2. Floppy cable connector



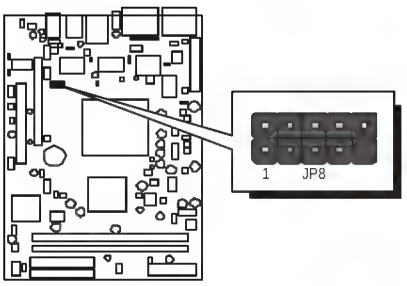
Step 8

Connect Other Internal Peripherals

1. CD-IN, and Front Audio connectors



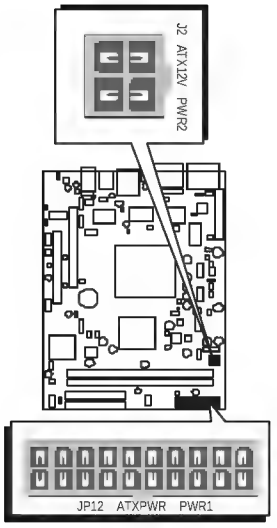
2. 1394 header



Step 9

Connect the Power Supplies

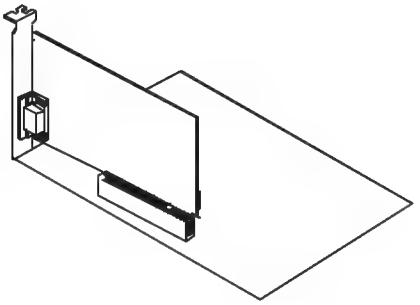
1. System power connectors



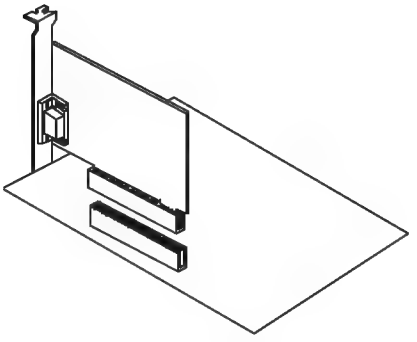
Step 10

Install Add-on Cards in Expansion Slots

1. AGP Card



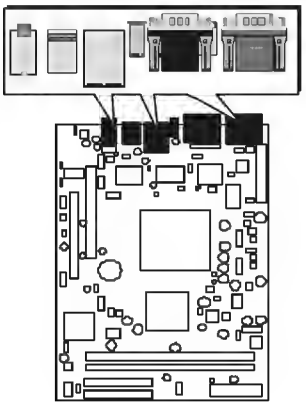
2. PCI Card



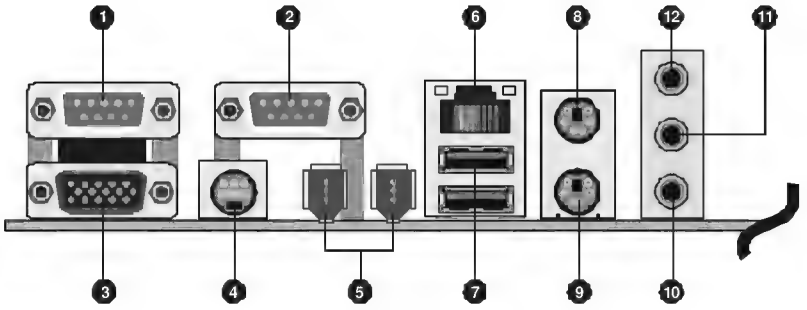
Step 11

Connect External Peripherals to Back-Panel

You are now ready to put the computer case back together and get on to the external peripheral connections to your system's back-panel.



1. COM1 Port
2. COM2 Port
3. VGA Port
4. AV & S-Video Port
5. 1394 Ports
6. LAN Port
7. USB1/2 Ports
8. PS/2 Mouse
9. PS/2 Keyboard
10. Audio Line-Out (Front-Out) Port
11. Audio Line-In (Rear-Out) Port
12. Audio Bass/Center-Out Port



Step 12

First Time System Boot Up

To assure the completeness and correctness of your system installation, you may check the above installation steps once again before you boot up your system for the first time.

1. Insert a bootable system floppy disk (DOS 6.2x, Windows 95/98/NT, or others) which contains FDISK and FORMAT utilities into the FDD.

2. Turn on the system power.

3. First, you must use the FDISK utility to create a primary partition of the hard disk. You can also add an extended partition if your primary partition does not use all of the available hard disk space. If you choose to add an extended partition, you will have to create one or more logical partitions to occupy all the space available to the extended partition. The FDISK utility will assign a drive letter (i.e. C:, D:, E:,.....) to each partition which will be shown in the FDISK program. After FDISK procedure, reboot your system by using the same system floppy disk.

> **Note:** DOS 6.2x and Windows 95A can only support up to 2.1GB of HDD partition. If you use the FDISK utility with one of the operating systems mentioned above, you can only install your HDD into partitions no larger than 2.1GB each.

4. Now, use the FORMAT utility to format all the partitions you've created. When formatting the primary partition (C:), make sure to use the FORMAT C: /S command.

> **Note:** FORMAT C: /S can transfer all the necessary system files into the primary partition of your hard disk. Then, your HDD will become a bootable drive.

5. Install all the necessary drivers for CD-ROM, Mouse, etc.

6. Setup the complete operating system according to your OS installation guide.

Step 13

Install Drivers & Software Components

Please note that all the system utilities and drivers are designed for Win 9x/ 2000/ME/XP/NT operating systems only. Make sure your operating system is already installed before running the driver's installation CD-ROM programs.

1. Insert the bundled FX41 CD-ROM into your CD-ROM drive. The autorun program will display the driver's main installation window on screen.
2. Choose "Install VIA Chipset Driver" and complete it.
3. Choose "Install VGA Device Driver" and complete it.
4. Choose "Install Audio Driver" and complete it.
5. Choose "Install USB2.0 Driver" and complete it.
6. Choose "Install LAN Driver" and complete it.
7. Exit from the autorun driver's installation program.

❁ Please refer to section **Chapter 4 Software Utility** to install drivers.

3.2 Jumper Settings

Several hardware settings are made through the use of mini jumpers to connect jumper pins on the mainboard. Pin #1 could be located at any corner of each jumper, you just find the location with a white right angle which stands for pin 1#. There are several types of pin 1# shown as below:

3-pin and multi (> 3) pin jumpers shown as following:

Pin #1 to the left:

Pin #1 on the top:

Pin #1 to the right:

Pin #1 on the bottom:

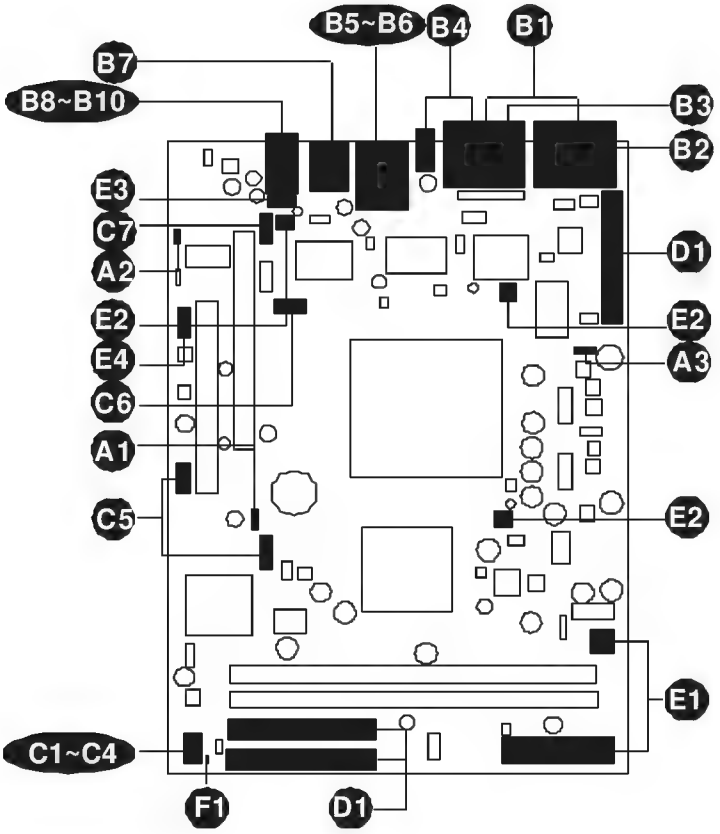
Jumpers with two pins are shown as for Close [On] or for Open [Off]. To short jumper pins, simply place a plastic mini jumpers over the desired pair of pins.

Caution!

1. Do not remove the mainboard from its antistatic protective packaging until you are ready to install it.
2. Carefully hold the mainboard by its edges and avoid touching its components. When putting the mainboard down, place it on top of its original packaging film, on an even surface, and components side up.
3. Wear an antistatic wrist strap or take other suitable measures to prevent electrostatic discharge (ESD) whenever handling this equipment.

Jumpers & Connectors Guide

Use the mainboard layout on page 11 to locate CPU socket, memory banks, expansion slots, jumpers and connectors on the mainboard during the installation. The following list will help you to identify jumpers, slots, and connectors along with their assigned functions:



CPU/Memory/Expansion Slots

Socket	: CPU Socket for AMD AthlonXP and Duron processors
DIMM1/2	: Two184-pin DIMM Slots for 64, 128, 256, 512 MB, and 1GB of 2.5V DDR SDRAM (The total installed memory does not exceed 2GB.)
Expansion Slots	: One 32-bit PCI Slot; one AGP Slot

Jumpers

A1	JP1	: Clear CMOS setting
A2	JP2	: FSB setting
A3	JP4	: BIOS written protection

Back Panel Connectors

B1	COM1/2	: Serial ports 1/2 (DB9 male)
B2	VGA	: VGA port (DB15 female)
B3	AV & S-Video	: AV and S-Video Port
B4	1394	: 2 x 1394 (1/2) Ports
B5	LAN	: 10/100 base-T LAN Port
B6	USB	: 2 USB (1/2) (Universal Serial Bus) ports
B7	MS	: PS/2 mouse port
	KB	: PS/2 keyboard port
B8	BASS/CENTER	: Audio Bass/Center-Out Port
B9	LINE-OUT	: Audio Line-Out (Front-Out) Port
B10	LINE-IN	: Line-In (Rear-Out) Port

Front Panel Connectors

C1	POWER ON	: ATX power on/off momentary type switch
C2	HDD LED	: IDE drive active LED
C3	GREEN LED	: Green LED (ON when system stays in power saving mode)
	POWER LED	: System power LED
C4	RESET	: Hardware reset switch
C5	USB2/3&4/5	: Extended USB Headers (JP5&JP6)
C6	JP8	: Front Panel 1394 header
C7	JP10	: Front Audio connector

Internal Peripheral Connectors

D1	FDD	: Floppy disk drive interface
	IDE1	: IDE primary interface (Dual-channel)
	IDE2	: IDE secondary interface (Dual-channel)

Other Connectors

E1	JP12	: ATX power connector
	J2	: ATX 12V power connector
E2	FAN1	: CPU fan connector
	FAN2	: System fan connector
	FAN3	: Chipset fan connector
E3	CN5	: CD_IN connector
E4	JP9	: SPDIF In/Out connector

The Others

F1 CPU Temperature Guardian LED

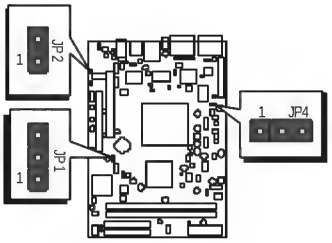
☞ *Jumpers*

A1 Clear CMOS Setting (JP1)

JP1 is used to clear CMOS data. Clearing CMOS will result in the permanently erasing previous system configuration settings and the restoring original (factory-set) system settings.

Pin 1-2 (Default)

Pin 2-3 (Clear CMOS)



Step 1. Turn off the system power (PC-> Off).
Step 2. Remove ATX Power cable from ATX Power connector.
Step 3. Remove jumper cap from JP1 pins 1-2.
Step 4. Place the jumper cap on JP1 pins 2-3 for a few seconds.
Step 5. Return the jumper cap to pins 1-2.
Step 6. Plug ATX Power cable into ATX Power connector.
Step 7. Turn on the system power (PC-> On).

A2 FSB Setting (JP2)

FX41provides jumper JP2 to configure front side bus at 100/133MHz.

Pin 1-2 (100MHz)

(133MHz)

A3 BIOS Written Protection (JP4)

JP4 is used to protect BIOS from abnormal writing. You may choose to place jumper cap on pins 1-2 for BIOS written protection; however, please place jumper cap on pins 2-3 if you need to reflash BIOS.

Pin 1-2 (BIOS written protection)

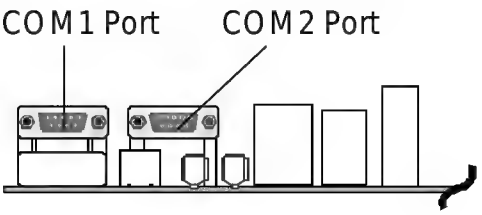
Pin 2-3 (Default-reflashing BIOS)

Step 1. Turn off the system power (PC-> Off).
Step 2. Make sure of place jumper cap on pins 2-3.
Step 3. Insert a bootable system floppy disk with FX41 BIOS and flash utility and then turn on your system to execute flash utility.

☞ *Back-Panel Connectors*

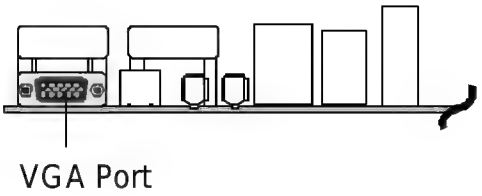
B1 COM1/2 Port Connectors

FX41 mainboard can accommodate one serial device on COM1/2. Attach a serial device cable to the DB9 serial port COM1/2 at the back-panel of your computer.



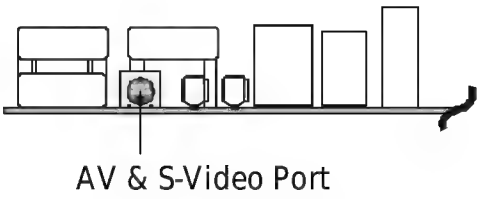
B2 VGA Connector

One 15-pin VGA connector is located at the rear panel of the mainboard.



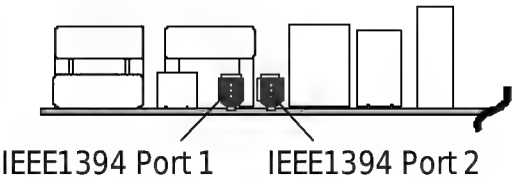
B3 Optional AV & S-Video TV-Out Connector

FX41 mainboard can accommodate an AV and S-Video port on back-panel.



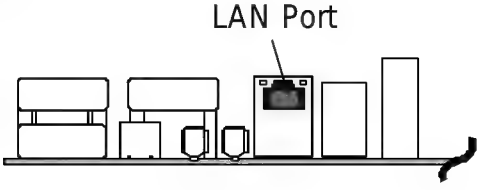
B4 IEEE 1394 Port Connectors

This mainboard offers two 1394 ports on back-panel. Plug each device jack into an available 1394 connector.



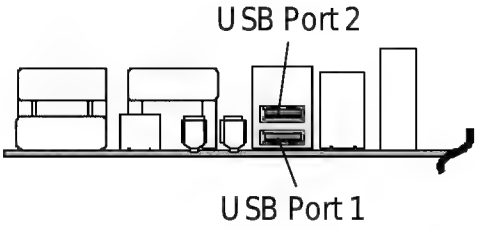
B5 10/100 base-T LAN Port Connector

FX41 mainboard can accommodate one device on LAN. Attach a RJ45 cable to the LAN port at the back-panel of your computer.



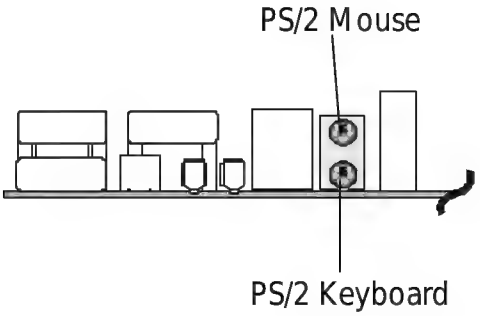
B6 USB Port 1/2 Connectors

Two female connectors USB1/USB2 share the same USB (Universal Serial Bus) bracket at the rear panel of your FX41 mainboard. Plug each USB device jack into an available USB1/USB2 connector.



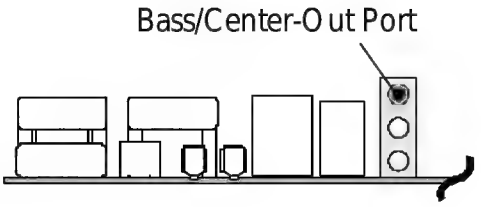
B7 PS/2 Keyboard & PS/2 Mouse Connectors

Two 6-pin female PS/2 Keyboard & Mouse connectors are located at the rear panel of the mainboard. Depending on the computer housing you use (desktop or tower), the PS/2 Mouse connector is situated at the top of the PS/2 Keyboard connector when the mainboard is laid into a desktop, as opposed to a tower where the PS/2 Mouse connector is located at the right of the PS/2 Keyboard's. Plug the PS/2 Keyboard and Mouse jacks into their corresponding connectors.



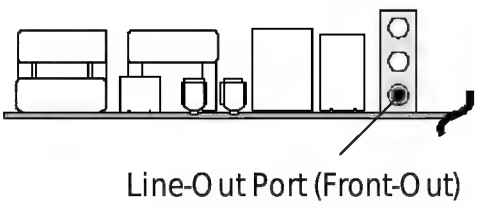
B8 Bass/Center-Out Port Connector

Bass/Center-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to bass/center amplified speakers.



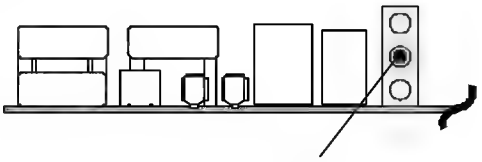
B9 Line-Out (Front-Out) Port Connector

Line-Out is a stereo output port through which the combined signal of all internal and external audio sources on the board is output. It can be connected to 1/8-inch TRS stereo headphones or to amplified speakers.



Line-In (Rear-Out) Port Connector

Line-In is a stereo line-level input port that accepts a 1/8-inch TRS stereo plug. It can be used as a source for digital sound recording, a source to be mixed with the output, or both.

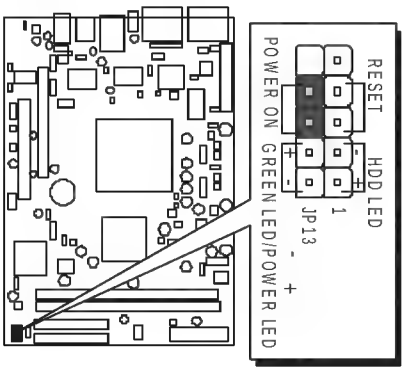


Line-In Port (Rear-Out)

☞ *Front-Panel Connectors*

① ATX Power On/Off Switch Connector (POWER ON)

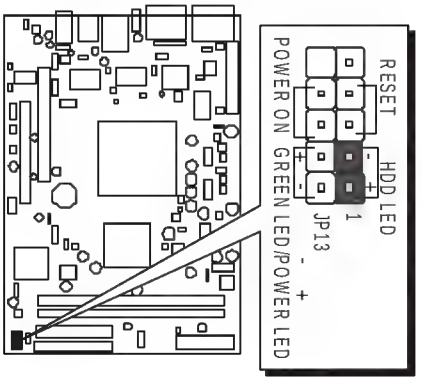
The Power On/Off Switch is a momentary type switch used for turning on or off the system ATX power supply. Attach the connector cable from the Power Switch to the 2-pin (POWER ON) header on the mainboard.



Note : Please notice all the LED connectors are directional. If your chassis's LED does not light up during running, please simply change to the opposite direction.

② HDD LED Connector (HDD LED)

Attach the connector cable from the IDE device LED to the 2-pin (HDD LED) header. The HDD LED lights up whenever an IDE device is active.



Green LED/Power LED Connector (GREEN LED/POWER LED)

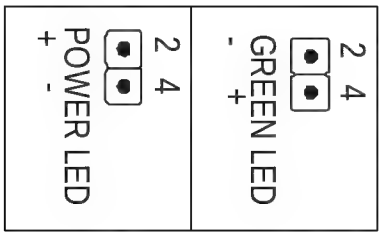
This header is dual color LED function.

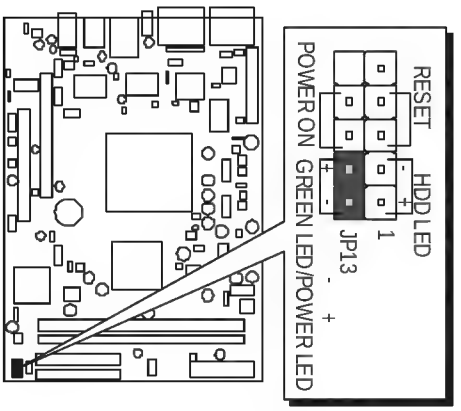
Dual color LED function is defined by either Power LED or Green LED, the header can be in these states.

The Green LED indicates that the system is currently in one of the power saving mode (Doze/Standby/Suspend). When the system resumes to normal operation mode, the Green LED will go off, Power LED on.

This Power LED will go off during power saving mode.

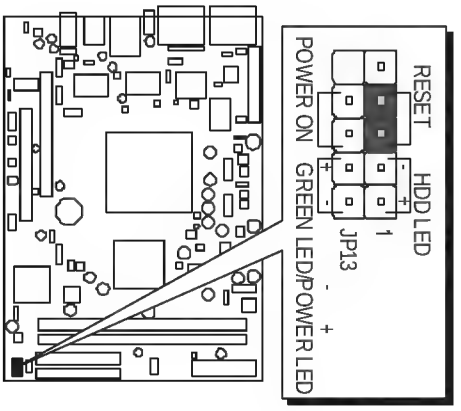
Attach a 2-pin Green LED/Power LED cable to (GREEN LED/POWER LED) header.





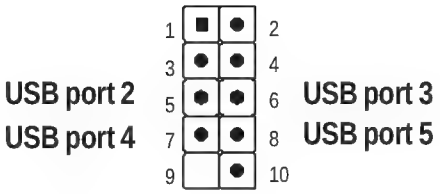
Hardware Reset Connector (RESET)

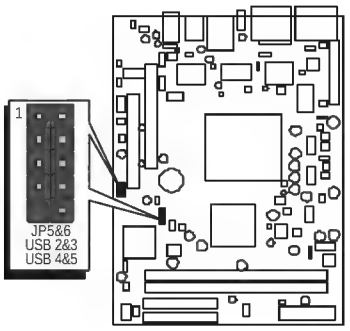
Attach the 2-pin hardware reset switch cable to the (RESET) header. Pressing the reset switch causes the system to restart.



Extended USB Headers (JP5&JP6)

The headers are used to connect the cable attached to USB connectors which are mounted on front panel or back panel. But the USB cable is optional at the time of purchase.



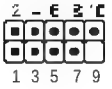


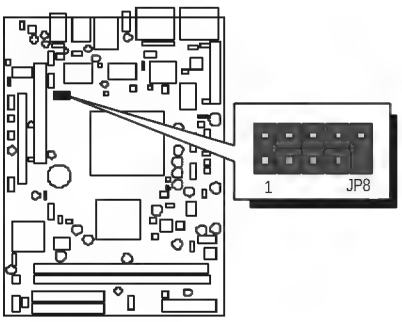
Pins Assignment:

1= + 5V	3= USBD0-	5= USBD0+
7= GND	9= KEY	
2= + 5V	4= USBD1-	6= USBD1+
8= GND	10= N/A	

Front-Panel 1394 Header (JP8)

The header are used to connect the cable attached to 1394 connector which are mounted on front panel or back panel. But the 1394 cable is optional at the time of purchase.



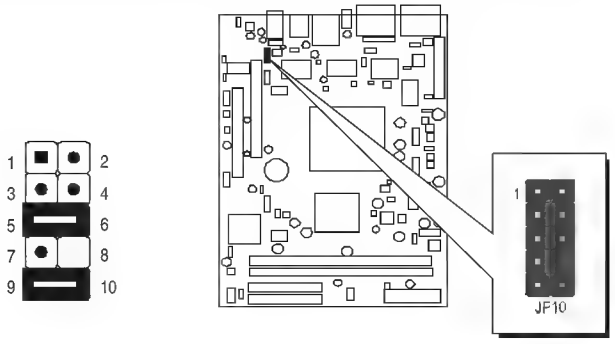


Pins Assignment:

1= TPA+	2= TPA-
3= GND	4= GND
5= TPB+	6= TPB-
7= + 12V	8= + 12V
9= KEY	10= GND

Front-Panel Audio Header (JP10)

This header allows users to install an auxiliary front-oriented audio port for easier access. Either the Line-out connector on back- panel or JP10 header are available at the same time. If you would like to use this JP10 header on front-panel, please remove all jumpers from JP10 and install your special Extra Audio cable instead.



Two mini jumpers must be setted on pin5-6 and pin 9-10, when this header is not used.

Pins Assignment:

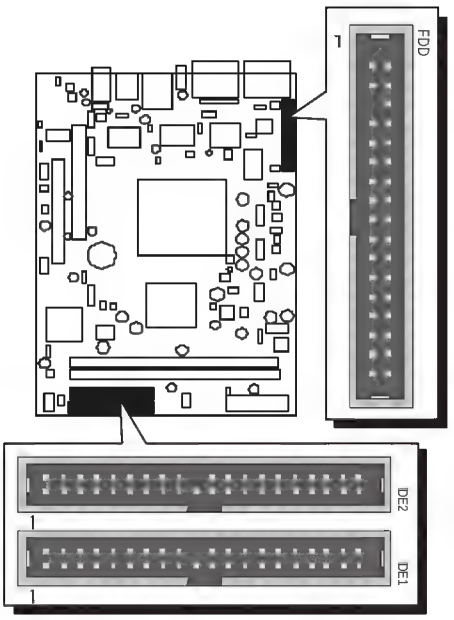
1 = AUD_MIC	2 = AUD_GND
3 = AUD_MIC_VCC	4 = RESERVE
5 = AUD_FRONT_R	6 = AUD_RET_R
7 = NC	8 = KEY
9 = AUD_FRONT_L	10 = AUD_RET_L

☞ *Internal Peripheral Connectors*

Enhanced IDE and Floppy Connectors

FX41 mainboard features two 40-pin dual-channel IDE device connectors (IDE1/IDE2) providing support for up to four IDE devices, such as CD-ROM and Hard Disk Drives (H.D.D.).

This mainboard also includes one 34-pin floppy disk controller (FDC) to accommodate the Floppy Disk Drive (FDD). Moreover, this mainboard comes with one 80-pin ATA**100/66/33** ribbon cable to connect to IDE H.D.D. and one 34-pin ribbon cable for F.D.D. connection.



Important: Ribbon cables are directional, therefore, make sure to always connect with the red cable stripe on the same side as pin #1 of the IDE1/IDE2 or FDD connector on the mainboard.

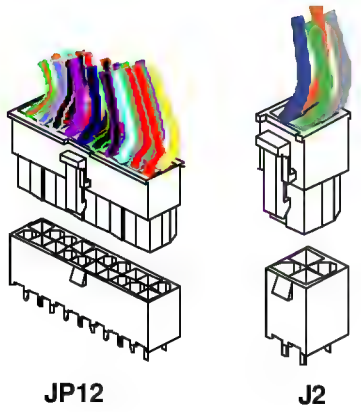
☞ *Other Connectors*

ATX Power Supply Connectors (JP12 and J2)

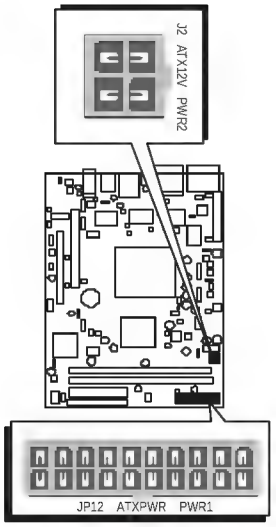
This motherboard uses 20-pin (JP12) AMD AthlonXP/Duron standard ATX power header, and other J2 with 1X4-pin + 12V PC ATX power supply header.

Please make sure you plug in the right direction.

ATX Power supply headers



JP12 J2



Note: **This motherboard can't support AC power resumes from power failure, you must press power button to power-on.**

Note 1: The ATX power connector is directional and will not go in unless the guides match perfectly making sure that pin#1 is properly positioned.

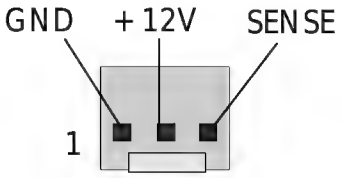
Note 2: Make sure the latch of the ATX power connector clicks into place to ensure a solid attachment.

Note 3: Your ATX power supply must be supplied to ACPI + 5V standby power and at least 720mA compatible.

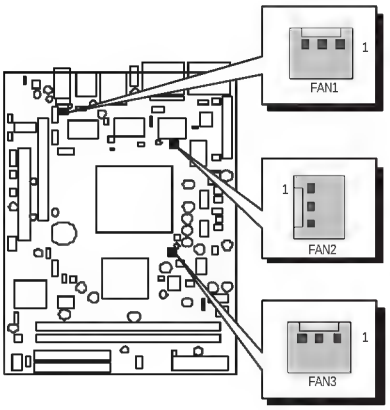
Note 4: Make sure your power supply have enough power for higher speed processor installed.

E2 Cooling Fan Connectors - FAN1/2/3

FX41 mainboard provides four onboard 12V cooling fan power connectors to support CPU (FAN1), System (FAN2), or Chipset (FAN3) cooling fans.



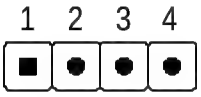
FAN1/2/3 with rotate sense.



Note:
Both cable wiring and type of plug may vary, which depends on the fan maker. Keep in mind that the red wire should always be connected to the +12V header and the black wire to the ground (GND) header.

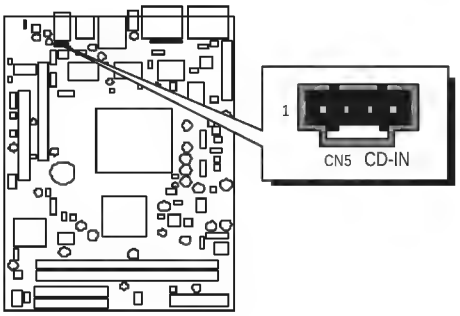
E3 CD_IN Connector (CN5) (Black)

Port CN5 is used to attach an audio connector cable from the CD-ROM drive.



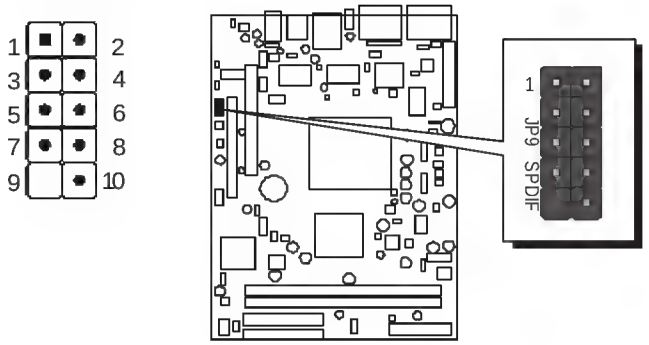
Pin Assignments:

1= CD-L 2= CD-GND
3= CD-GND 4= CD-R



E4 SPDIF In/Out Header (JP9)

Port JP9 can be used to connect special device.



Pin Assignments:

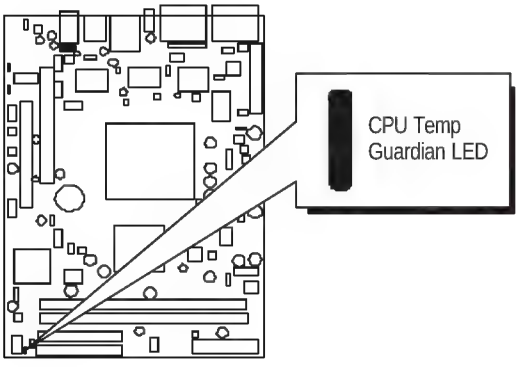
JP9

1= + 12V	2= VCC
3= N/A	4= SPDIF-OUT
5= SPDIF-IN	6= GND
7= N/A	8= N/A
9= KEY	10= GND

☞ *The Others*

F1 CPU Temperature Guardian LED

When CPU's temp is too high, the LED will be turned on and the system will shut down automatically.



3.3 System Memory Configuration

FX41 mainboard has two 184-pin DIMM slots that allow you to install from 64MB up to 1GB of system memory.

Each 184-pin DIMM (Dual In-line Memory Module) Slot can accommodate 64MB, 128MB, 256MB, 512MB, and 1G of PC1600/PC2100 compliant 2.5V single (1 Bank) or double (2 Bank) side 64-bit wide data path DDR SDRAM modules.

Install Memory:

Install memory in any or all of the slots and in any combination shown as follows.

DIMM Socket	Memory Modules	Module Quantity
DIMM 1	64MB, 128MB, 256MB, 512MB, and 1G 184-pin 2.5V DDR SDRAM DIMM	x 1
DIMM 2	64MB, 128MB, 256MB, 512MB, and 1G 184-pin 2.5V DDR SDRAM DIMM	x 1

Note: Maximum installed memory is 2GB.

Note: You do not need to set any jumper to configure memory since the BIOS utility can detect the system memory automatically. You can check the total system memory value in the BIOS Standard CMOS Setup menu.

Upgrade Memory:

You can easily upgrade the system memory by inserting additional DDR SDRAM modules in available DIMM slots. The total system memory is calculated by simply adding up the memory in all DIMM slots. After upgrade, the new system memory value will automatically be computed and displayed in the field " Standard CMOS Setup" of BIOS setup program.

4 SOFTWARE UTILITY

4.1 Mainboard CD Overview

Note: The CD contents attached in the FX41 mainboard are subject to change without notice.

To start your FX41 mainboard CD disc, just insert it into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click or run D:\Autorun.exe (assuming that your CD-ROM drive is drive D:)

Navigation Bar Description:

- Install Mainboard Driver - Installing VIA 4 in1 driver.
- Manual - FX41 Series mainboard user's manual in PDF format.
- Link to Shuttle Homepage - Link to shuttle website homepage.
- Browse this CD - Allows you to see contents of this CD.
- Quit - Close this CD.

4.2 Install Mainboard Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Install Mainboard Driver" bar to run into sub-menu.

The Mainboard FX41 Driver include:

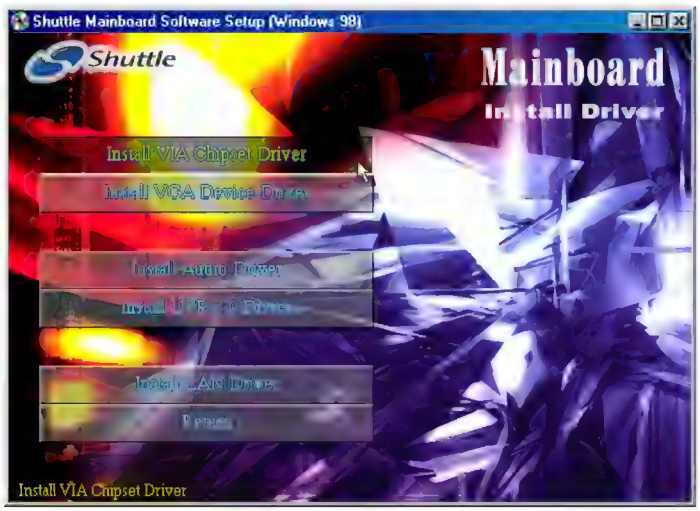
[4.2.A] Install VIA Chipset Driver
[4.2.B] Install VGA Device Driver
[4.2.C] Install Audio Driver
[4.2.D] Install USB 2.0 Driver
[4.2.E] Install LAN Driver

Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.A Install VIA Chipset Driver

Select using your pointing device (e.g. mouse) on the " Install VIA Chipset Driver" bar to install chipset system driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.B Install VGA Device Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Install VGA Device Driver" bar to install VGA driver.

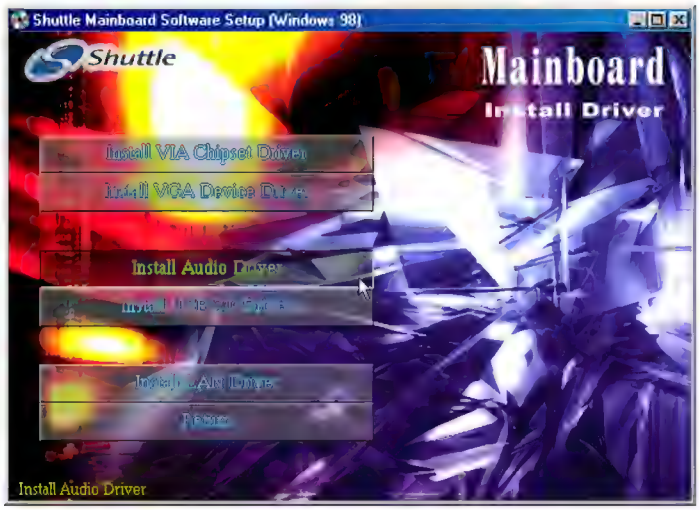
Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.C Install Audio Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Install Audio Driver" bar to install Hardware Audio driver.



Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

4.2.D Install USB 2.0 Driver

Select using your pointing device (e.g. mouse) on the " Install USB 2.0 Driver" bar to install USB 2.0 driver.

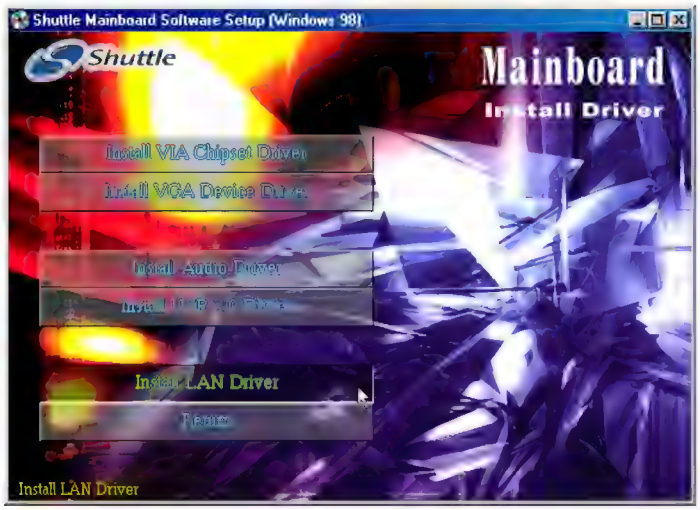
Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to make the installation take effect.

4.2.E Install LAN Driver

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on Autorun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Install LAN Driver" bar to install LAN driver.



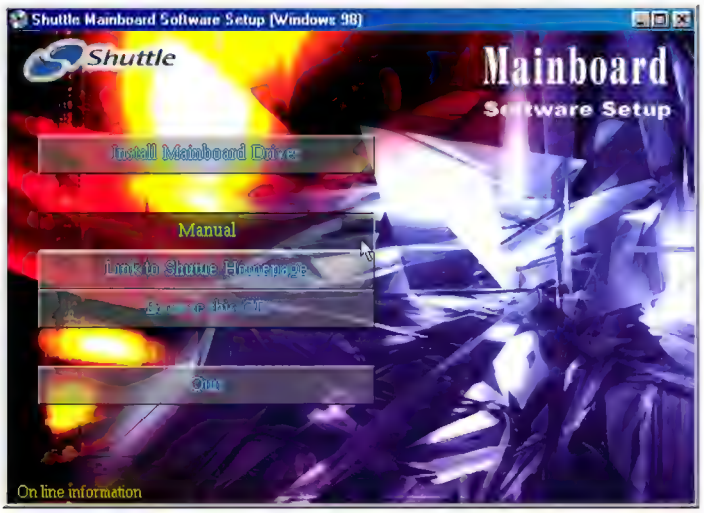
Once you made your selection, a Setup window run the installation automatically.

When the copying files is done, make sure you reboot the system to take the installation effect.

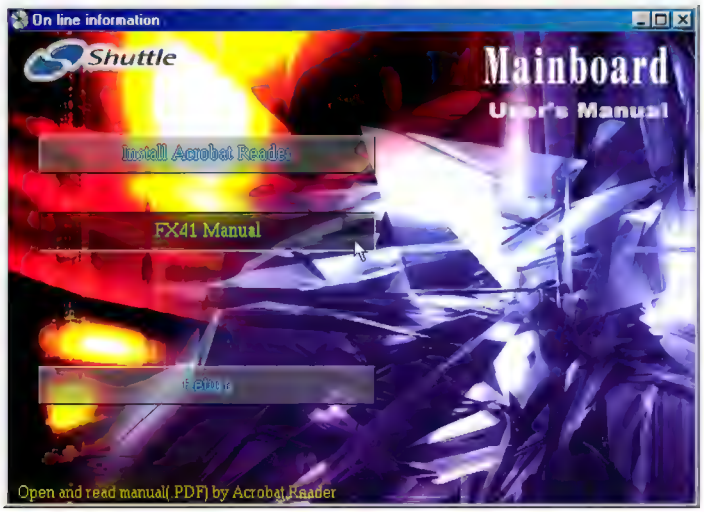
4.3 View the User's Manual

Insert the attached CD into your CD-ROM drive and the CD AutoRun screen should appear. If the AutoRun screen does not appear, double click on AutoRun icon in My Computer to bring up Shuttle Mainboard Software Setup screen.

Select using your pointing device (e.g. mouse) on the " Manual" bar.



Then Online Information windows will appear on your screen. Click on the "Install Acrobat Reader" bar if you need to install acrobat reader.



Then click on "FX41 Manual" bar to view FX41 user's manual.

5 BIOS SETUP

FX41 mainboard's BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This information is stored in battery-backed RAM so that it retains the Setup information even if the system power is turned off.

The system BIOS is managing and executing a variety of hardware related functions in the system, including:

System date and time

Hardware execution sequence

Power management functions

Allocation of system resources

5.1 Enter the BIOS

To enter the BIOS (Basic Input / Output System) utility, follow these steps:

Step 1. Power on the computer, and the system will perform its POST (Power-On Self Test) routine checks.

Step 2. Press < Del> key immediately, or at the following message: "Press DEL to enter SETUP," or simultaneously press the < Ctrl> , < Alt> , < Esc> keys.

Note 1. If you miss trains of words meationed in step2 (the message disappears before you can respond) and you still wish to enter BIOS Setup, restart the system and try again by turning the computer OFF and ON again or by pressing the < RESET> switch located at the computer's front-panel. You may also reboot by simultaneously pressing the < Ctrl> , < Alt> , < Del> keys.

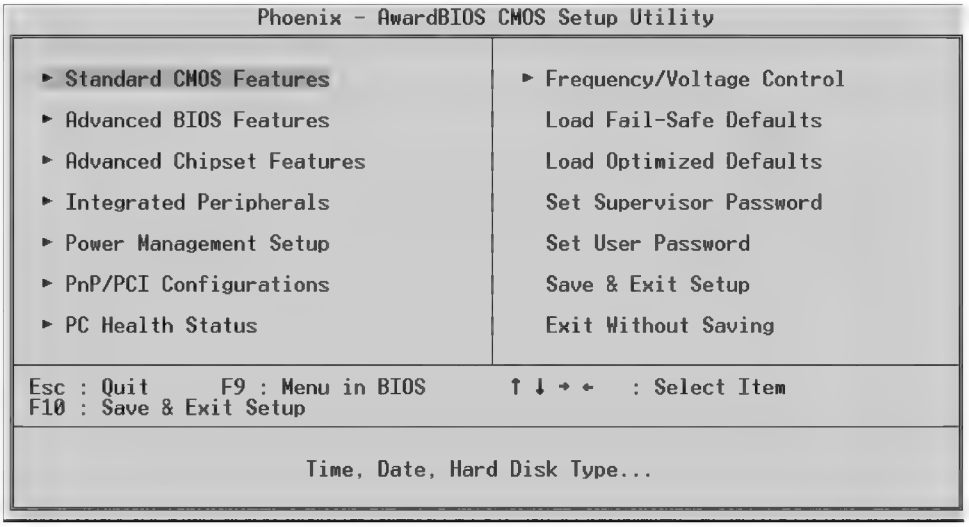
Note 2. If you do not press the keys in time and system does not boot, the screen will prompt an error message, and you will be given the following options:

"Press F1 to Continue, DEL to Enter Setup"

Step 3. As you enter the BIOS program, the CMOS Setup Utility will prompt you the Main Menu, as shown in the next section.

5.2 The Main Menu

Once you enter the AwardBIOS(tm) CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.


Phoenix - AwardBIOS CMOS Setup Utility
► Standard CMOS Features
► Advanced BIOS Features
► Advanced Chipset Features
► Integrated Peripherals
► Power Management Setup
► PnP/PCI Configurations
► PC Health Status
► Frequency/Voltage Control
Load Fail-Safe Defaults
Load Optimized Defaults
Set Supervisor Password
Set User Password
Save & Exit Setup
Exit Without Saving
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup
Time, Date, Hard Disk Type...

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Setup Items

The main menu includes the following main setup categories. Recall that some systems may not include all entries.

Standard CMOS Features

Use this menu for basic system configuration.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PnP / PCI Configurations

This entry appears if your system supports PnP / PCI.

PC Health Status

This entry shows the current system temperature, Voltage, and FAN speed.

Frequency/Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the BIOS default values for the minimal/stable performance of your system to operate.

Load Optimized Defaults

Use this menu to load the BIOS default values that are factory-set for optimal performance system operation. While Award has designed the custom BIOS to maximize performance, the factory has the right to change these defaults to meet users' needs.

Set Supervisor/User Password

Use this menu to change, set, or disable supervisor/user password. It allows you to limit access to the system and Setup, or only to Setup.

Save & Exit Setup

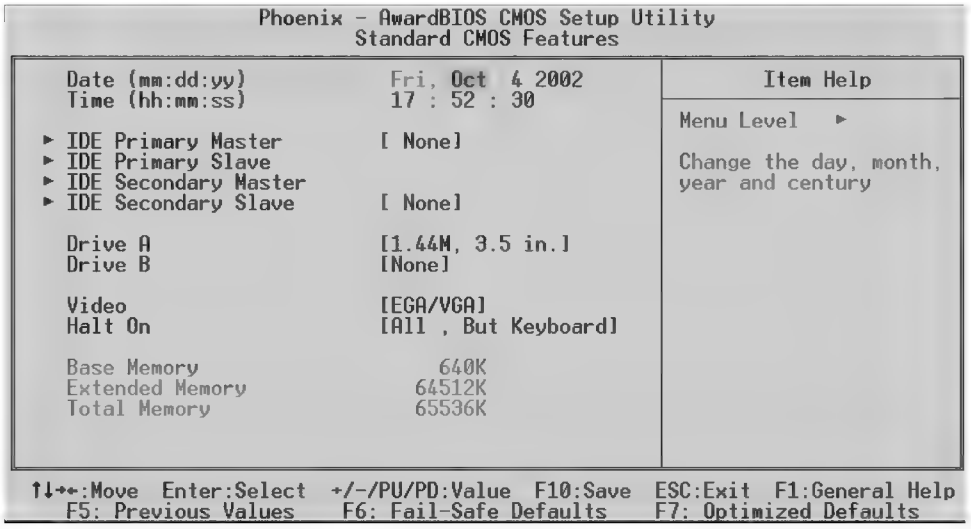
Save CMOS value changes in CMOS and exit from setup.

Exit Without Saving

Abandon all CMOS value changes and exit from setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes no, one or more than one setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Fri, Oct 4 2002
Time (hh:mm:ss) 17 : 52 : 30
IDE Primary Master [None]
IDE Primary Slave
IDE Secondary Master
IDE Secondary Slave [None]
Drive A [1.44M, 3.5 in.]
Drive B [None]
Video [EGA/VGA]
Halt On [All , But Keyboard]
Base Memory 640K
Extended Memory 64512K
Total Memory 65536K
Item Help
Menu Level ▸
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Date

<Month> <DD> <YYYY>

Set the system date. Note that the 'Day' automatically changes when you set the date.

Time

<HH : MM : SS>

The time is converted based on the 24-hour military-time clock. For example, 5 p.m. is 17:00:00.

IDE Primary Master

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Primary Slave

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

IDE Secondary Master

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

IDE Secondary Slave

Options are in its sub menu.

Press < Enter> to enter the sub-menu of detailed options.

Drive A/Drive B

Select the type of floppy disk drive installed in your system.

- The choice: None, 360K, 5.25 in, 1.2M, 5.25 in, 720K, 3.5 in, 1.44M, 3.5 in, or 2.88M, 3.5 in.

Video

Select the default video device.

- The choice: EGA/VGA, CGA 40, CGA 80, or MONO.

Halt On

Select the situation in which you want the BIOS to stop the POST process and notify you.

- The choice: All Errors, No Errors, All, But Keyboard, All, But Diskette, or All, But Disk/Key.

Base Memory

Displays the amount of conventional memory detected during boot up.

- The choice: N/A.

Extended Memory

Displays the amount of extended memory detected during boot up.

- The choice: N/A.

Total Memory

Displays the total memory available in the system.

- The choice: N/A.

****

IDE Adapters

The IDE adapters control the hard disk drive. Use a separate sub-menu to configure each hard disk drive.

IDE HDD Auto-Detection

Press < Enter> to auto-detect HDD on this channel. If detection is successful, it fills the remaining fields on this menu.

- Press Enter

IDE Primary Master
Selecting 'manual' lets you set the remaining fields on this screen and select the type of fixed disk. "User Type" will let you select the number of cylinders, heads, etc., Note: PRECOMP=65535 means NONE!

- The choice: None, Auto, or Manual.

Access Mode
Choose the access mode for this hard disk.

- The choice: CHS, LBA, Large, or Auto.

Capacity
Disk drive capacity (Approximated). Note that this size is usually slightly greater than the size of a formatted disk given by a disk checking program. Auto-Display your disk drive size.

The following options are selectable only if the 'IDE Primary Master' item is set to 'Manual'

Cylinder
Set the number of cylinders for this hard disk.

- Min = 0, Max = 65535

Head
Set the number of read/write heads.

- Min = 0, Max = 255

Precomp
Warning: Setting a value of 65535 means no hard disk.

- Min = 0, Max = 65535

Landing zone
Set the Landing zone size.

- Min = 0, Max = 65535

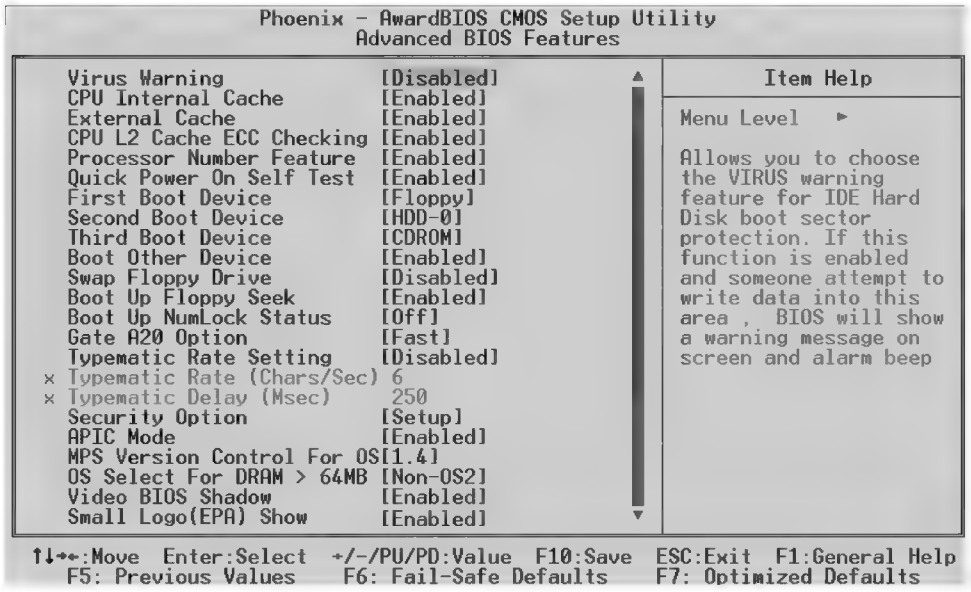
Sector
Number of sector per track.

- Min = 0, Max = 255

****

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing, and security.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
Virus Warning [Disabled]
CPU Internal Cache [Enabled]
External Cache [Enabled]
CPU L2 Cache ECC Checking [Enabled]
Processor Number Feature [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [Floppy]
Second Boot Device [HDD-0]
Third Boot Device [CDROM]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [Off]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
APIC Mode [Enabled]
MPS Version Control For OS [1.4]
OS Select For DRAM > 64MB [Non-OS2]
Video BIOS Shadow [Enabled]
Small Logo(EPA) Show [Enabled]
Item Help
Menu Level ►
Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area , BIOS will show a warning message on screen and alarm beep
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enables and someone attempts to write data into this area, BIOS will show a warning message on screen, and an alarm beep.

Enabled Activates automatically when the system boots up, causing a warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Disabled No warning message will appear when anything attempts to access the boot sector or hard disk partition table.

➢ The choice: Enabled or Disabled.

CPU Internal Cache

All processors that can be installed in this mainboard use internal level 1 (L1) cache memory to improve performance. Leave this item at the default value for better performance.

➢ The choice: Enabled or Disabled.

External Cache

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

- The choice: Enabled or Disabled.

CPU L2 Cache ECC Checking

When you select Enabled, memory checking is enabled when the CPU internal L2 cache contains ECC SRAMs.

- The choice: Enabled or Disabled.

Processor Number Feature

Allows you to make AMD Processor Serial Number enabled/disabled.

- The choice: Enabled, or Disabled.

Quick Power On Self Test

This item speeds up Power-On Self Test (POST) after you power on the computer. If it is set to enabled, BIOS will shorten or skip some check items during POST.

- The choice: Enabled, or Disabled.

First/Second/Third Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items.

- The Choice: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, USB-FDD, USB-ZIP, USB-CDROM, USB-HDD, LAN, or Disabled.

Boot Other Device

Select Your Boot Device Priority.

- The choice: Enabled or Disabled.

Swap Floppy Drive

If the system has two floppy drives, you can swap the logical drive name assignment.

- The choice: Enabled or Disabled.

Boot Up Floppy Seek

Seeks disk drives during boot-Up. Disabling speed boots up.

- The choice: Enabled or Disabled.

Boot Up NumLock Status

Selects power-on state for NumLock.

- The choice: Off or On.

Gate A20 Option

This entry allows you to select how the gate A20 is handled. The gate A20 is a device used for above 1MByte of address memory. Initially, the gate A20 was handled via a pin on the keyboard. Today, while a keyboard still provides this support, it is more common and much faster in setting to Fast for the system chipset to provide support for gate A20.

- The choice: Normal, or Fast.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When this controller enabled, the typematic rate and typematic delay can be selected.

- The choice: Enabled or Disabled.

Typematic Rate (Chars/Sec)

This item sets how many times the keystroke will be repented in a second when you hold the key down.

- The choice: 6, 8, 10, 12, 15, 20, 24, or 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

- The choice: 250, 500, 750, or 1000.

Security Option

Select whether the password is required every time the system boots or only when you enter setup.

System The system will not boot and access to Setup will be denied if the correct password is not entered promptly.

Setup The system will boot, but access to Setup will be denied if the correct password is not entered promptly.

- The choice: System or Setup.

Note: To disabled security, select PASSWORD SETTING at Main Menu, and then you will be asked to enter password. Do not type anything and just press < Enter> ; it will disable security.

Once the security is disabled, the system will boot, and you can enter Setup freely.

APIC Mode

Selects enable/disable IO APIC function

- The choice: Enabled or Disabled.

MPS Version Control For OS

Selects the operating system multiprocessor support version.

- The choice: 1.1 or 1.4

OS Select For DRAM > 64MB

Selects the operating system that is running with greater than 64MB of RAM in the system.

- The choice: Non-OS2 or OS2.

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM. However, it is optional depending on chipset design. Video Shadow will increase the video speed.

- The choice: Enabled or Disabled.

Small Logo(EPA) Show

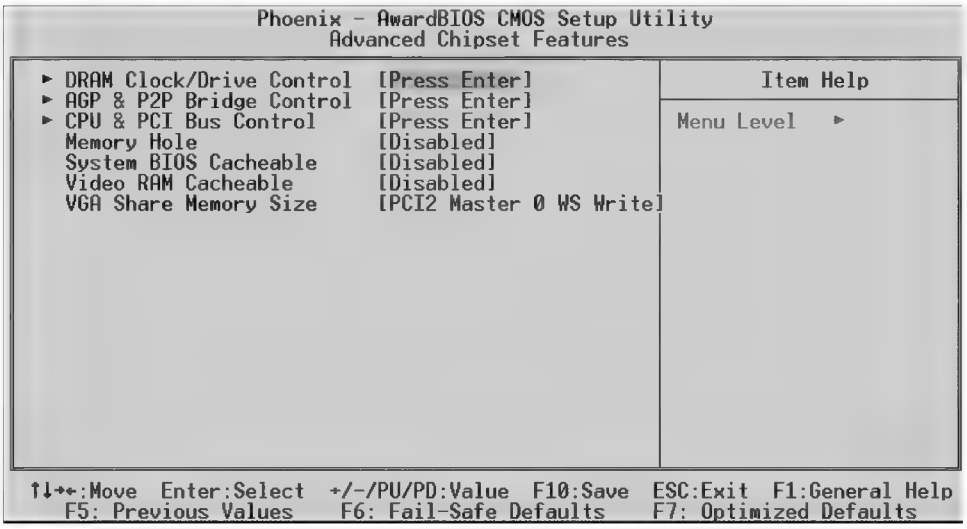
This item allows you to enable/disable the EPA Logo.

- The choice: Enabled or Disabled.

Advanced Chipset Features

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It also coordinates communications between the conventional ISA bus and the PCI bus. It states that these items should never need to be altered.

The default settings have been chosen because they provide the best operating conditions for your system. If you discovered that data was being lost while using your system, you might consider making any changes.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
► DRAM Clock/Drive Control [Press Enter]
► AGP & P2P Bridge Control [Press Enter]
► CPU & PCI Bus Control [Press Enter]
Memory Hole [Disabled]
System BIOS Cacheable [Disabled]
Video RAM Cacheable [Disabled]
VGA Share Memory Size [PCI2 Master 0 WS Write]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

DRAM Clock/Drive Control

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

Current FSB Frequence

This item show Current CPU Front Side Bus speed.

Current DRAM Frequence

This item show Current DRAM speed.

DRAM Clock

This item allows you to control the DRAM speed.

➢ The Choice: 100MHz, 133MHz, or By SPD.
When CPU speed set to 100MHz, DRAM speed can be set to 100MHz(by Host Clock) , or 133MHz (ratio 3:4 CPU: DRAM).

When CPU speed set to 133MHz, DRAM speed only set to 133MHz (by Host Clock).

DRAM Timing

This item allows you to select the value in this field, depending on whether the board using which kind of DDR DRAM.

➢ The Choice: By SPD or Manual.

The following five items will become selectable if you choose "Manual" item.

DRAM CAS Latency

➢ The Choice: 2.5 or 2.

Bank Interleave

➢ The Choice: Disabled, 2 Bank, or 4 Bank.

Precharge to Active(Trp)

➢ The Choice: 2T or 3T.

Active to Precharge(Tras)

➢ The Choice: 5T or 6T.

Active to CMD(Trcd)

➢ The Choice: 2T or 3T.

DRAM Burst Length

This item allows you to select the DRAM burst length.

➢ The Choice: 4 or 8.

DRAM Queue Depth

This item allows you to select the DRAM queue depth.

➢ The Choice: 2 level, 4 level, or 3 level.

DRAM Command Rate

This item allows you to select the DRAM executed rate.

➢ The Choice: 2T Command or 1T Command.

APG & P2P Bridge Control

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

AGP Aperture Size (MB)

Select the size of Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are

forwarded to the AGP without any translation.

- The Choice: 4M, 8M, 16M, 32M, 64M, 128M, or 256M.

AGP Mode

This item allows you to select the AGP Mode.

- The Choice: 1x, 2x, or 4x.

AGP Driving Control

This item enables the system to automatically select its output buffer drive strength or make it manually selectable by an end user.

- The Choice: Auto or Manual.

AGP Driving Value

This item enables an end user to manually select the AGP output buffer drive strength.

- Key in a HEX number: Min= 0000, Max= 00FF.

AGP Fast Write

This item enables or disables AGP card fast written function.

- The Choice: Enabled or Disabled.

AGP Master 1 WS Write

When this item enabled, writing to the AGP(Accelerated Graphics Port) is executed with one wait state.

- The Choice: Enabled or Disabled.

AGP Master 1 WS Read

When this item enabled, reading from the AGP (Accelerated Graphics Port) is executed with one wait state.

- The Choice: Enabled or Disabled.

CPU & PCI Bus Control

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

PCI1Master 0 WS Write

When this item enabled, writing to the PCI bus is executed with zero wait state.

- The Choice: Enabled or Disabled.

PCI2 Master 0 WS Write

When this item enabled, writing to the AGP bus is executed with zero wait state.

- The Choice: Enabled or Disabled.

PCI1 Post Write

This Item enable/disable AGP post write function, which means when cpu accessing the AGP data, the chipset can queue the instruction when the AGP bus is busy,then write the data when AGP bus is available .

➢ The Choice: Enabled or Disabled.

PCI2 Post Write

This Item enable/disable PCI post write function, which means when cpu accessing the PCI data, the chipset can queue the instruction when the PCI bus is busy, then write the data when AGP bus is available.

➢ The Choice: Enabled or Disabled.

PCI Delay Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

➢ The Choice: Enabled or Disabled.

Memory Hole

In order to improve performance, some space in memory can be reserved for ISA cards.

➢ The Choice: Disabled or 15M-16M.

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program is written to this memory area, a system error may result.

➢ The choice: Enabled or Disabled.

Video RAM Cacheable

Selecting Enabled allows caching of the video RAM , resulting in better system performance. However, if any program is written to this memory area, a system error may result.

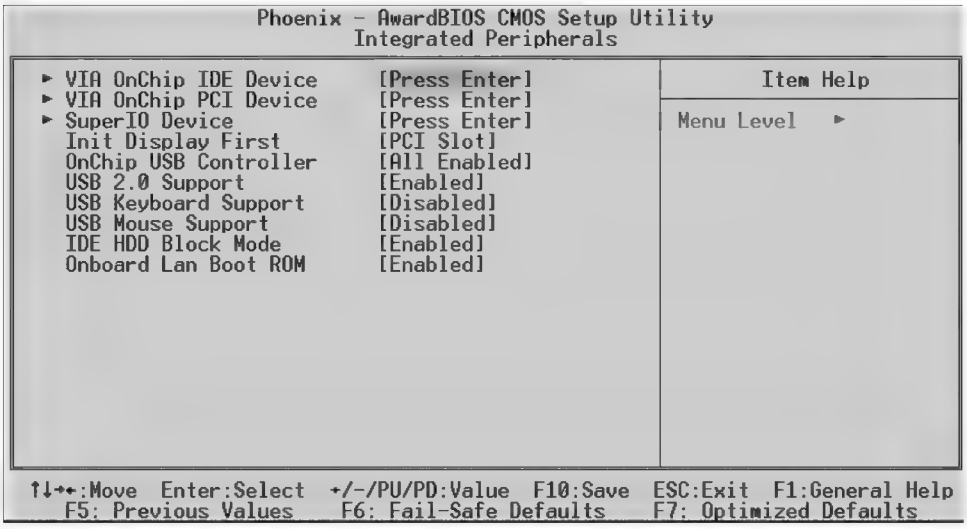
➢ The Choice: Enabled or Disabled.

VGA Share Memory Size

The VGA share memory size is set as 8M.

➢ The Choice: Disabled, 8M, 16M, or 32M.

Integrated Peripherals


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
► VIA OnChip IDE Device [Press Enter]
► VIA OnChip PCI Device [Press Enter]
► SuperIO Device [Press Enter]
Init Display First [PCI Slot]
OnChip USB Controller [All Enabled]
USB 2.0 Support [Enabled]
USB Keyboard Support [Disabled]
USB Mouse Support [Disabled]
IDE HDD Block Mode [Enabled]
Onboard Lan Boot ROM [Enabled]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

VIA OnChip IDE Device

Options are in its sub-menu.

Press <Enter> to enter the sub-menu of detailed options.

OnChip IDE Channel0

The chipset contains a PCI IDE interface with support to two IDE channels. Select Enabled to activate the primary IDE interface; select Disabled to deactivate this interface

➢ The choice: Enabled or Disabled.

OnChip IDE Channel1

The chipset contains a PCI IDE interface with support to two IDE channels. Select Enabled to activate the secondary IDE interface; select Disabled to deactivate this interface

➢ The choice: Enabled or Disabled.

IDE Prefetch Mode

The onboard IDE drive interfaces support IDE prefetching for faster drive access. If you install a primary and/or secondary add-on IDE interface, set this field to Disabled if the interface does not support prefetching.

➢ The choice: Enabled or Disabled.

Primary/Secondary Master/Slave PIO

The four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

- The choice: Auto, Mode 0, Mode 1, Mode 2, Mode 3, or Mode 4.

Primary/Secondary Master/Slave UDMA

Ultra DMA/100 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If both of your hard drive and your system software support Ultra DMA/100, select Auto to enable BIOS support.

- The choice: Auto or Disabled.

VIA OnChip PCI Device

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

VIA-3058 AC97 Audio

This item allows you to control the onboard AC 97 audio.

- The Choice: Auto or Disabled.

SuperIO Device

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you want to use it. If you install add-on FDC or the system has no floppy drive, select Disabled in this field.

- The choice: Enabled or Disabled.

Onboard Serial Port1/Port2

Select an address and corresponding interrupt for the first and second serial ports.

- The choice: 3E8/IRQ4, 2E8/IRQ3, 3F8/IRQ4, 2F8/IRQ3,Auto, or Disabled.

UART Mode Select

This item allows you to select the mode for the Onboard Serial Port 2.

- The choice: IrDA, ASKIR, or Normal.

UR2 Duplex Mode

This item allows you to selects the IR half/full duplex function.

- The choice: Full or Half.

Onboard Parallel Port

This item allows you to determine onboard parallel port controller I/O address setting.

- The choice:: 378/IRQ7, 278/IRQ5, 3BC/IRQ7, or Disabled.

Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

- The choice: SPP, EPP, ECP, or ECP+ EPP.

ECP Mode Use DMA

Select a DMA channel for the parallel port for use during ECP mode.

- The choice: 1 or 3.

Init Display First

This item allows you to decide to activate PCI Slot or on-chip VGA first.

- The choice: PCI Slot, Onboard, or AGP.

OnChip USB Controller

This should be enabled if your system has a USB installed on the system board and you want to use it. Even when on chip USB so equipped, if you add a higher performance controller, you will need to disable this feature.

- The Choice: All Disabled, All Enabled, 1&2 USB Port, 2&3 USB Port, 1&3 USB Port, 1 USB Port, 2 USB Port, or 3 USB Port.

USB 2.0 Support

Select Enabled if your system contains a Universal Serial Bus (USB) 2.0 controller and you have USB periperals.

- The Choice: Enabled or Disabled.

USB Keyboard Support

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

- The Choice: Enabled or Disabled.

USB Mouse Support

Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.

- The Choice: Enabled or Disabled.

IDE HDD Block Mode

The chipset contains a PCI IDE interface with support for two IED channels. Select Enabled to activate the primary and/or secondary IDE interface. Select Disabled to deactivate this interface, if you install a primary and/or secondary add-in IDE interface IDE interface.

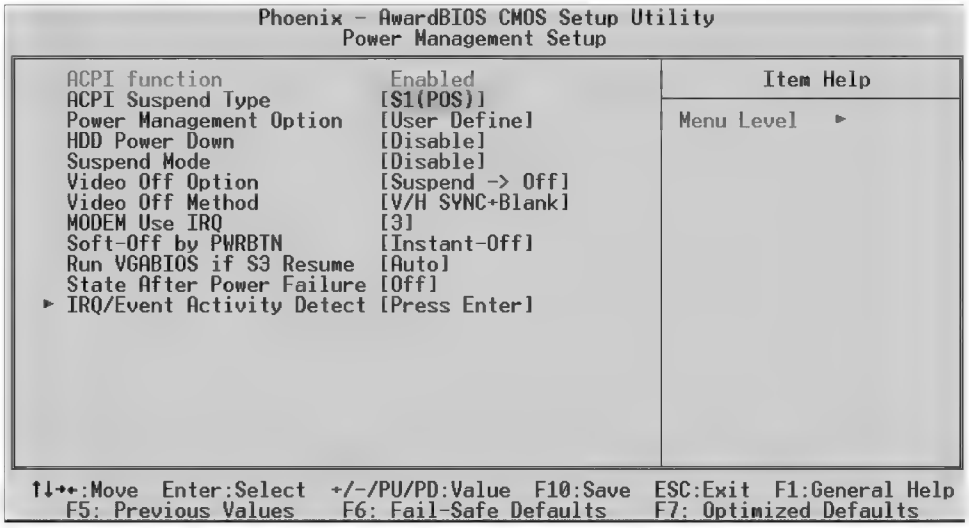
- The choice: Enabled or Disabled.

Onboard Lan Boot ROM

This item enables you to decide whether to invoke the boot ROM of the onboard lan chip.

- The Choice: Enabled or Disabled.

☞ Power Management Setup


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI function Enabled
ACPI Suspend Type [S1(POS)]
Power Management Option [User Define]
HDD Power Down [Disable]
Suspend Mode [Disable]
Video Off Option [Suspend -> Off]
Video Off Method [V/H SYNC+Blank]
MODEM Use IRQ [3]
Soft-Off by PWRBTN [Instant-Off]
Run VGABIOS if S3 Resume [Auto]
State After Power Failure [Off]
► IRQ/Event Activity Detect [Press Enter]
Item Help
Menu Level ►
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The Power Management Setup allows you to configure your system to most effectively saving energy while operating in a manner consistent with your own style of computer use.

ACPI Function

This item allows you to enable the Advanced Configuration and Power Management (ACPI).

ACPI Suspend Type

This item allows you to select sleep state when suspend.

➢ The choice: S1(POS) or S3(STR).

Power Management

This category allows you to select the type (or degree) of power saving mode settings.

Min Saving	Minimum power management. Suspend Mode = 1 hr.
Max Saving	Maximum power management. Suspend Mode = 1 min.
User Define	Allows you to set each mode individually. Suspend Mode = Disabled or 1 min ~ 1 hr.

➢ The choice: User Define, Min Saving, or Max Saving.

HDD Power Down

When this item enabled and after the set up time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

- The choice: Disabled or 1 Min~ 15 Min.

Suspend Mode

When this item enabled and after the set up time of system inactivity, all devices except the CPU will be shut off.

- The choice: Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, or 1 Hour.

Video Off Option

When enabled, this feature allows the VGA adapter to operate in a power saving mode.

Always On	Monitor will remain on during power saving mode.
Suspend --> Off	Monitor is blanked when the system enters the Suspend mode.

- The choice: Always On or Suspend -> off.

Video Off Method

This determines the manner in which the monitor is blanked.

V/H SYNC+ Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS Support	Initial display power management signaling.

- The choice: V/H SYNC+ Blank, Blank Screen, or DPMS Support.

MODEM Use IRQ

This determines the IRQ which the MODEM can use.

- The choice: 3, 4, 5, 7, 9, 10, 11, or N/A.

Soft-Off by PWRBTN

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung.".

- The choice: Instant-Off or Delay 4 Sec.

Run VGABIOS if S3 Resume

- The choice: Auto, Yes or No.

IRQ/Event Activity Detect

Options are in its sub-menu.

Press < Enter> to enter the sub-menu of detailed options.

PS2 KB Wakeup Select

Select a hotkey or password to wake up the system.

PS2 KB Wakeup from S3/S4/S5

- The choice: Disable, Ctrl+ F1, Ctrl+ F2, Ctrl+ F3, Ctrl+ F4, Ctrl+ F5, Ctrl+ F6, Ctrl+ F7, Ctrl+ F8, Ctrl+ F9, Ctrl+ F10, Ctrl+ F11, Ctrl+ F12, Power, Wake, or Any key.

PS2 MS Wakeup from S3/S4/S5

- The choice: Disabled or Enabled.

USB Resume from S3

- The choice: Disabled or Enabled.

VGA

When this item enabled, you can set VGA to awaken the system.

- The choice: OFF or ON.

LPT & COM

When LPT & COM stays On, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

- The choice: NONE, LPT, COM, or LPT/COM

HDD & FDD

When HDD & FDD stays On, any activity from one of the listed system peripheral devices wakes up the system.

- The choice: OFF or ON

PCI Master

When PCI Master stays On, any activity from one of the listed system peripheral devices wakes up the system.

- The choice: OFF, or ON

Power-On by PCI Card

This item enables/disables the power on function of PCI Card.

- The choice: Disabled or Enabled.

Modem Ring Resume

When this item enabled, any event occurring Modem Ring/activity of LAN will awaken a system which has been powered down.

- The choice: Disabled or Enabled.

RTC Alarm Resume

When this item enabled, your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.

➢ The choice: Disabled or Enabled.

Data (of Month)

This item selects the alarm date.

➢ Key in a DEC number:Min= 0, Max= 31.

Resume Time (hh:mm:ss)

This item selects the alarm Time.

[hh]

➢ Key in a DEC number:Min= 0, Max= 23.

[mm/ss]

➢ Key in a DEC number:Min= 0, Max= 59.

IRQs Activity Monitoring

Primary INTR

Press Enter to on/off the wake up ability of a specified IRQ.

➢ The choice: OFF, or ON.

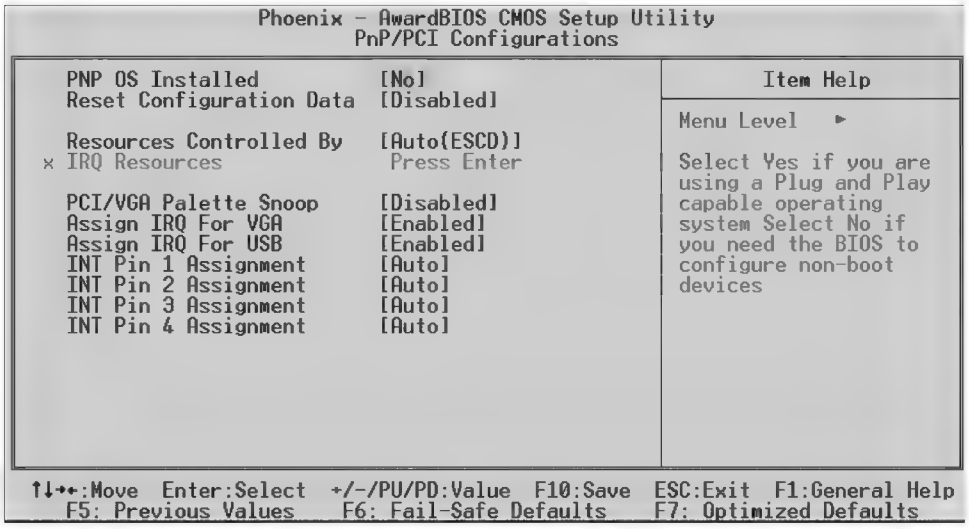
In the following is a list of IRQ's, Interrupt ReQuests, which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service.

When On mode exist, activity will neither prevent the system from going into a power management mode nor awaken it.

IRQ 3 (COM 2)
IRQ 4 (COM 1)
IRQ 5 (LPT 2)
IRQ 6 (Floppy Disk)
IRQ 7 (LPT 1)
IRQ 8 (RTC Alarm)
IRQ 9 (IRQ 2 Redir)
IRQ 10 (Reserved)
IRQ 11 (Reserved)
IRQ 12 (PS / 2 Mouse)
IRQ 13 (Coprocessor)
IRQ 14 (Hard Disk)
IRQ 15 (Reserved)

➢ The choice: Disabled or Enabled.

PnP/PCI Configurations


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
PNP OS Installed [No]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
x IRQ Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
Assign IRQ For VGA [Enabled]
Assign IRQ For USB [Enabled]
INT Pin 1 Assignment [Auto]
INT Pin 2 Assignment [Auto]
INT Pin 3 Assignment [Auto]
INT Pin 4 Assignment [Auto]
Item Help
Menu Level ►
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

This section describes the configuration of PCI bus system. PCI or Personal Computer Interconnection is a system which allows I/O devices to operate at the speed CPU itself keeps when CPU communicating with its own special components.
This section covers some very technical items, and it is strongly recommended that only experienced users should make any changes to the default settings.

PNP OS Installed

This item allows you to determine PnP OS is installed or not.

- The choice: Yes or No.

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit from Setup if you have installed a new device or software and the system reconfiguration has caused such a serious conflict that the operating system can not boot.

- The choice: Enabled or Disabled .

Resource controlled By

The Award Plug-and-Play BIOS has the capacity to automatically configure all of the boot and Plug-and-Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug-and-Play operating system such as Windows 95.

If you set this field to "manual" , choose specific resources by going into each of the sub-menu that follows this field (a sub-menu is proceeded by a "> ").

- The choice: Auto(ESCD) or Manual.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

IRQ 3/4/5/7/9/10/11/12/14/15 assigned

This item allows you to determine the IRQ assigned to the ISA bus and is not available to any PCI slot. Legacy ISA for devices is compliant with the original PC AT bus specification; PCI/ISA PnP for devices is compliant with the Plug-and-Play standard whether designed for PCI or ISA bus architecture.

- The choice: PCI Device or Reserved.

PCI/VGA Palette Snoop

It determines whether the MPEG ISA/VESA VGA Cards can work with PCI/VGA or not. If you have MPEG ISA/VESA VGA Cards and PCI/VGA Card worked, Enable this field. Otherwise, please Disable it.

- The choice: Enabled or Disabled.

Assign IRQ For VGA

This item allows the user to set VGA IRQ Routing table Enabled or Disabled.

- The choice: Enabled or Disabled.

Assign IRQ For USB

This item allows the user the option to assign an IRQ to on-board USB controller.

Since the on-board controller is always enabled, if no IRQ is assigned to it, there will be a question mark report on the sytem device under Windows95/98.

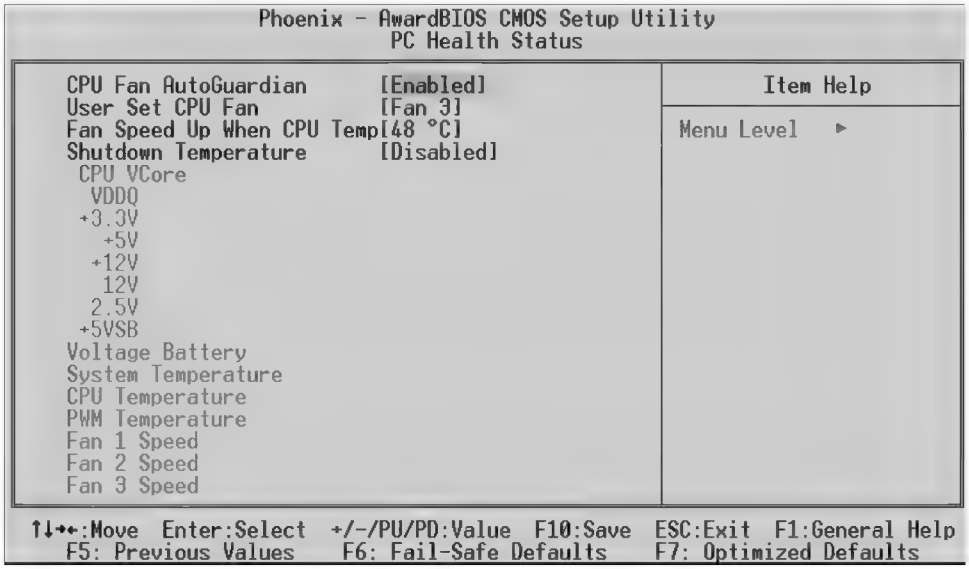
- The choice: Enabled or Disabled.

INT Pin 1/2/3/4 Assignment

This item defines each PCI slot IRQ assignment by manually, which can avoid the IRQ share problem for some PCI card cannot share IRQ.

- The choice: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, or 15.

PC Health Status



CPU Fan AutoGuardian

This SMART Bios enableds you 3 phase Variable Fan Speed and CPU temperature Control feature.

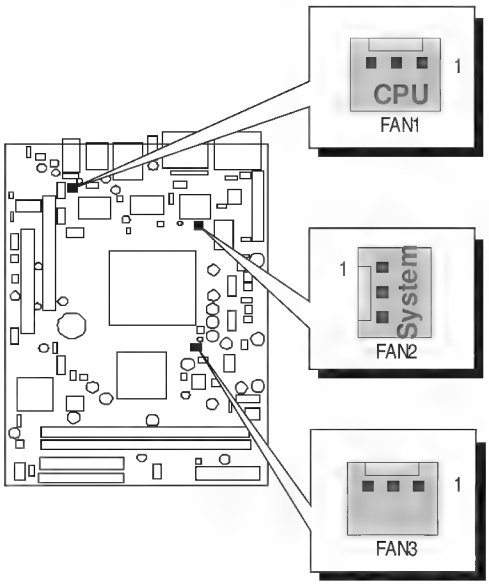
- The choice: Enabled or Disabled.

This feature is controlled via Bios, in which the CPU fan rotational speed sensing/control is governed by CPU temperature setting pre-selected in Bios.

By default, "CPU Fan AutoGuardian" feature under PC Health Status is disabled. To utilize the Smart Bios CPU Fan speed feature please "Enabled" .

Note: Before manually modifying the CPU fan settings, please make sure both fan connectors are plug into the correct fan connector designations on the mainboard.

Our default for CPU fan cooler is set to Fan 1 and system fan to FAN 2 as shown below.



User Set CPU Fan

Enable you to choose one or both specific fan for further setting.

- The choice: Fan1, Fan2, Fan3, or Fan1 & Fan3.

Fan Speed Up When CPU Temp

Enable 3 phase smart control to the Selected fan. This feature ranges from 40° C to 52° C, in an increment of 4° C. The default temperature is at 48° C.

- The choice: 40° C, 44° C, 48° C, or 52° C.

Take our default Setting for example, 1st and 2nd phase Variable Fan Speed and CPU temperature Control is as defined by "Fan Speed Up When CPU Temp". If actual CPU temp (reported by Bios) stays below 48°C then CPU fan speed will run at a **quiet mode** (1st phase) of approximately 2000 RPM.

But when the actual CPU temp goes above the pre-selected 48°C temperature threshold, then CPU fan speed will automatically engage into **normal mode** (2nd phase) of about 3000 RPM. Automated by the Smart Bios feature, this increase of fan rotation speed will effectively cool down the CPU temperature. And when the CPU temperature drops back below the 48°C temperature threshold, CPU fan speed will again automatically shift back to the quiet mode (1st phase) of about 2000 RPM in order to reduce fan noise level.

Fail-safe mode (3rd phase) Variable Fan Speed and CPU temperature Control is as predefined at 56°C. Where in the event of system and CPU operating under extreme working conditions, and if CPU temperature is raised above 56°C then the Smart Bios will engage the CPU fan in Fail-safe mode to rotate at about 4500 RPM. Please note that the higher the fan speed, the fan cooler will be become slightly noisier in order to compensate for the increase in CPU temperature.

Note: Please disable CPU Fan AutoGuardian feature, if you wish to use other K7 cooler, allowing the CPU fan to run at its default speed.

Shutdown Temperature

Enable you to set the maximum temperature that system can reachbefore powering down.

- The choice: 60° C/140° F, 65° C/149° F, 70° C/158° F, Disabled.

CPU VCore

VDDQ

+3.3V

+5V

+12V

-12V

2.5V

+5USB

Voltage Battery

System Temperature

CPU Temperature

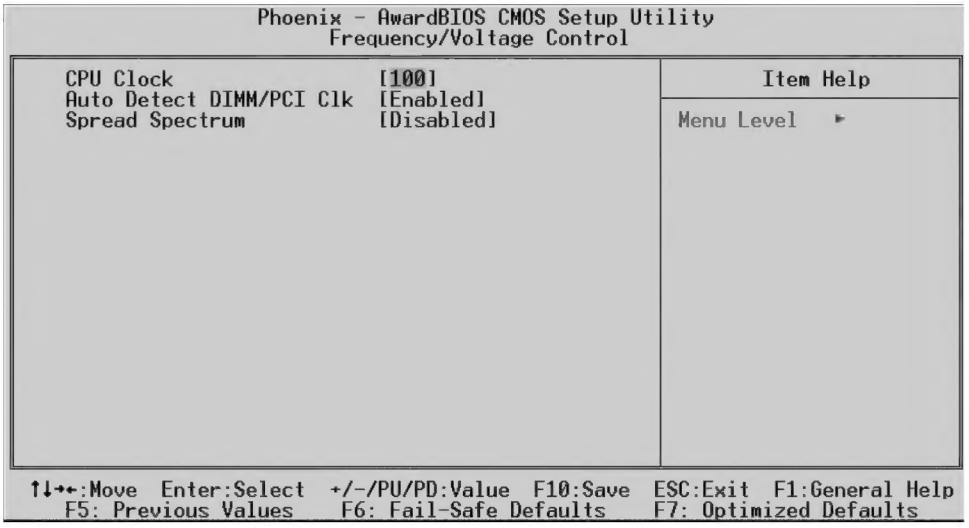
PWM Temperature

Fan 1 Speed

Fan 2 Speed

Fan 3 Speed

Frequency/Voltage Control


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
CPU Clock [100]
Auto Detect DIMM/PCI Clk [Enabled]
Spread Spectrum [Disabled]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

CPU Clock

This item allows you to adjust CPU Clock; it ranges from 100MHz to 165MHz.

Auto Detect DIMM/PCI Clk

This item allows you to enable/disable auto detection DIMM/PCI Clock.

- The choice: Enabled, or Disabled.

Spread Spectrum

This item allows you to enable/disable the spread spectrum modulation.

- The choice: Enabled, or Disabled.

Load Fail-Safe Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal performance system operations.

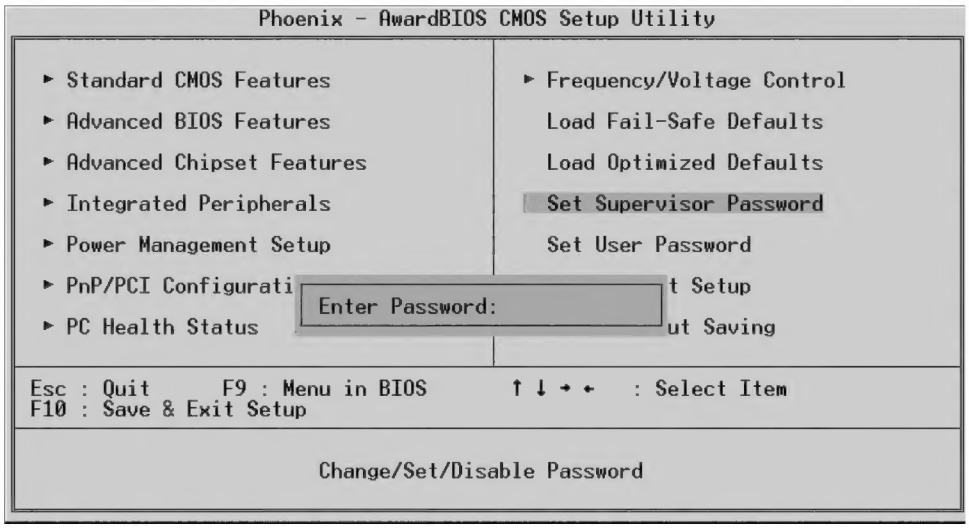
Load Optimized Defaults

When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory-set for optimal performance system operation.

Set Supervisor/User Password


Phoenix - AwardBIOS CMOS Setup Utility
► Standard CMOS Features
► Advanced BIOS Features
► Advanced Chipset Features
► Integrated Peripherals
► Power Management Setup
► PnP/PCI Configurati
► PC Health Status
► Frequency/Voltage Control
Load Fail-Safe Defaults
Load Optimized Defaults
Set Supervisor Password
Set User Password
t Setup
ut Saving
Enter Password:
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item
F10 : Save & Exit Setup
Change/Set/Disable Password

The steps to set supervisor/user password are described as follows:

New Password Setting :

1. While pressing <Enter> key to start setting password function, a dialog box appears to ask you Enter password.
2. Key in a new password now. However, the password can not be over eight characters or numbers.
3. Then system will request you to confirm new password by asking you to key in new password again.
4. Once the confirmation is completed, new code takes effect.

No Password Setting :

5. If you want to delete password, just press < Enter> key instead of new password while password input is requested. And the other procedures are the same as above password setting.

If You Forget Password :

6. While being asked of password, you just forget it and you must access the system. The only way is to turn off system and clear CMOS memory. Please take reference in page 26 for clear CMOS setting.

Save & Exit Setup

Pressing < Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus of CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

Pressing < Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit from Setup without storing in CMOS any change. The previous selections remain in effect. This exits from the Setup utility and restarts your computer.